

MICHIGAN HAZARD MITIGATION COORDINATING COUNCIL

REPORT OF ACTIVITIES 2002

Pursuant to Executive Order 1998-5



Prepared by the
Emergency Management Division
Michigan Department of State Police
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in conjunction with the

Michigan Hazard Mitigation Coordinating Council
Special Projects and Public Education Committees

February 18, 2003



As Chairperson of the Michigan Hazard Mitigation Coordinating Council (MHMCC), I am proud to present this Report of Activities for 2002.

Since being created by Executive Order 1998-5 on July 29, 1998, the MHMCC has been instrumental in formulating and charting the future direction and focus of Michigan's hazard mitigation efforts aimed at reducing or eliminating the long-term risk to human life and property from natural, technological, and human-related hazards within the state. In 2002, the MHMCC met four (4) times and its operating committees met a total of 11 times. At these meetings, the MHMCC examined many important and timely issues and proposed many actions to help Michigan's citizens and communities better cope with the hazards they face.

We were fortunate in Michigan in 2002 in that we did not face many serious disasters or emergencies through most of the year. However, in mid-April we did have widespread and severe flooding in several central and western Upper Peninsula counties that resulted in a Presidential Major Disaster Declaration and federal disaster relief assistance that totaled more than \$5.8 million. Thankfully, the affected areas are beginning to recover. Perhaps most importantly, they are taking many positive steps to mitigate future damages and impacts from flooding.

The MHMCC's 2002 agenda focused primarily on three major projects that will provide significant benefits to Michigan communities in the coming years. Those projects include 1) a statewide mitigation planning initiative to develop hazard mitigation plans in Michigan's counties and major municipalities, 2) a statewide repetitive flood loss properties elevation / acquisition program, and 3) a statewide mitigation marketing and public education program. These innovative projects, which are being administered and implemented by the EMD/MSP Mitigation Unit, will not only reduce the state's risk and vulnerability to flooding and other hazards but more importantly will provide a solid foundation for increased and more effective mitigation work in the future.

2003 looks to be another challenging year for the MHMCC as it continues its work on these and other important initiatives designed to make every Michigan community as safe and disaster resistant as possible through enhanced cooperation and coordination, partnership building, proactive action, and an informed citizenry.

Sincerely,

A handwritten signature in black ink, appearing to read "John Ort", is written over a light blue horizontal line.

JOHN ORT, CAPTAIN

Chairperson

Michigan Hazard Mitigation Coordinating Council

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INTRODUCTION AND BACKGROUND

What is Hazard Mitigation?

Hazard mitigation is defined as any action taken before, during, or after a disaster or emergency to permanently eliminate or reduce the long-term risk to human life and property from natural and technological hazards. It is an essential element of emergency management, along with preparedness, response and recovery. When successful, mitigation will lessen the need for a community to respond to succeeding hazard events – meaning incidents will remain incidents and not become disasters.

State Government Role

Hazard mitigation strives to reduce the impact of hazards on people and property through the coordination of resources, programs, initiatives and authorities. State government has a vital coordinating role to play in this effort. Laws and processes governing the use of land and development of property originate at the state level. In addition, state agencies administer a wide variety of programs that affect – either directly or indirectly – the development and use of land. For these reasons, state government is the logical origination point for mitigation measures that have statewide application and/or implications.

Local Government Role

However, the implementation of hazard mitigation measures is inherently a local government function since that is the level at which development occurs, and most of the land use / development tools available to implement mitigation measures are applied at the local level. Therefore, successful implementation of a program to reduce Michigan's long-term risk and vulnerability to hazards will, out of necessity, be a joint cooperative effort between the State, local governments, and the private sector (since most land development is undertaken by private entities).

Coordination of Ongoing Efforts

Coordination is probably the most critical factor in a successful mitigation effort or program. Many state and local agencies (as well as some private sector organizations) are already performing functions or administering programs that in some way contribute to mitigating hazards. However, coordination of these programs and activities to achieve widespread hazard risk and vulnerability reduction is often limited, if it occurs at all.

Michigan Hazard Mitigation Coordinating Council

In response to that problem, Governor John Engler signed Executive Order 1998-5 on July 29, 1998, creating the Michigan Hazard Mitigation Coordinating Council (MHMCC). The Council is chaired by the Emergency Management Division of the Michigan Department of State Police (EMD/MSP) and is composed of 10 members – seven from Michigan state agencies, two from private industry, and one from local emergency management. Executive Order 1998-5 charged the Council with four primary responsibilities:

- Assist in the development, maintenance, and implementation of a state hazard mitigation plan.
- Assist in the development, maintenance, and implementation of guidance and informational materials to support hazard mitigation efforts of local and state government, and private entities.
- Solicit, review, and identify hazard mitigation projects for funding under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, PL 93-288, as amended, and Sections 553 and 554 of the National Flood Insurance Reform Act, PL 103-325.
- Foster and promote, where appropriate, hazard mitigation principles and practices within local and state government, and with the general public.

The Council is divided into five operating committees, as follows: Finance; Legislative; Planning; Public Education; and Special Projects. The Council meets six times per year on a bi-monthly basis. The individual committees meet as needed between the formal Council meetings.

Vision and Mission Statements

In 1999, the Council formally adopted the following Vision and Mission Statements:

Vision Statement

“Michigan will be a state where hazard vulnerability reduction is a standard practice in both government and the private sector.”

Mission Statement

“To foster, promote and implement measures to eliminate or reduce the long-term risk to human life and property from the effects of natural and technological hazards in accordance with Executive Order No. 1998-5.”

Michigan Hazard Mitigation Plan Statewide Mitigation Goals

In 1999, the Council formally adopted the following goals for the Michigan Hazard Mitigation Plan (MHMP) and for statewide hazard mitigation activities:

Goal 1

Promote Life Safety: Minimize disaster-related injuries and loss of life through public education, hazard analysis, and early warning.

Goal 2

Reduce Property Damage: Incorporate hazard mitigation considerations into land use planning / management, land development processes, and disaster resistant structures.

Goal 3

Build Alliances: Forge partnerships with other public safety agencies and organizations to enhance and improve the safety and well being of all Michigan communities.

Goal 4

Provide Leadership: Provide leadership, direction, coordination, guidance, and advocacy for hazard mitigation in Michigan.

Michigan Hazard Mitigation Coordinating Council Members And Support Staff

Representing Col. Stephen Madden:

Capt. John Ort, Chair

Michigan Department of State Police, Emergency Management Division

Representing Mr. Russell J. Harding:

Mr. George Hosek

Michigan Department of Environmental Quality, Land and Water Management Division

Representing Mr. K.L. Cool:

Mr. Edward Hagan

Michigan Department of Natural Resources, Forest Management Division

Representing Mr. Dan Wyant:

Mr. Robert Tarrant

Michigan Department of Agriculture, Marketing and Communications Division

Representing Ms. Kathy Wilbur:

Mr. Anthony Sanfilippo

Michigan Department of Consumer and Industry Services, Office of Fire Safety

Representing Mr. Greg Rosine:

Ms. Eileen Phifer

Michigan Department of Transportation, Maintenance Division

Representing Mr. Duane Berger:

Mr. Okey Eneli

Michigan Department of Management and Budget, Office of Design and Construction

Representing the Property & Casualty Insurance Industry:

Mr. Kevin Thomason

State Farm Insurance

Representing an Urban Planning Association:

Dr. William D. Wagoner

Livingston County Emergency Management

Representing a Local Emergency Management Program:

Mr. William Smith

Ottawa County Emergency Services

Michigan Department of State Police / Emergency Management Division (EMD/MSP) Mitigation Unit Staff:

Bethany Hall*, Mitigation / Recovery Section Manager

(*retired 10/02; replaced by Ms. Christine Wroblewski)

Doran Duckworth, Mitigation Unit Supervisor and State Planner

Matt Schnepf, State Hazard Mitigation Officer

Joel Pepper, Assistant Hazard Mitigation Grant Manager

Karen Totzke, MHMCC / Project Impact Coordinator

Mike Sobocinski, Local Hazard Mitigation Planner

Vacant**, Local Hazard Mitigation Planner (**position vacated by Dan Shaw 11/02)

Angela Houseman, Secretary

Mike Curtis, Project Manager for Repetitive Flood Loss Properties Project, (EMD/MSP Public Assistance Unit)

Eric Nischan, Geographic Information System (GIS) Coordinator, (EMD/MSP Preparedness Section)



Michigan Hazard Mitigation Coordinating Council

Front Row, L-R: Eileen Phifer; Tony Sanfilippo; Robert Tarrant.

Back Row, L-R: Okey Eneli; Capt. John Ort; Ed Hagan; George Hosek; William Smith.

Not Pictured: Kevin Thomason; William Wagoner.



EMD/MSP Mitigation Unit Staff

Front Row, L-R: Angela Houseman; Sandy Glazier (EMD/MSP Public Assistance Unit); Mike Sobocinski; Doran Duckworth.

Back Row, L-R: Capt. John Ort; Karen Totzke; Matt Schnepp; Dan Shaw.

Not Pictured: Joel Pepper; Mike Curtis (EMD/MSP Public Assistance Unit).

2002 ACTIVITIES AND ACCOMPLISHMENTS

In 2002, the Council's efforts were focused primarily on marketing and promotion, hazard mitigation planning, and reducing the State's long-term risk to flooding:

February 20, 2002 Meeting

The February 20 meeting focused on a variety of ongoing activities being carried out through the Council's operating committees and the various mitigation grant programs administered by the EMD/MSP Mitigation Unit.

Executive Directive 2002-1 (Homeland Security Task Force)

The Council was briefed on the provisions of Executive Directive 2002-1, which formally established and delineated responsibilities for the Michigan Homeland Security Task Force (HSTF). The new HSTF is chaired by and falls under the direction of the EMD/MSP. Executive Directive 2002-1 states that "the Michigan Homeland Security Task Force shall collaborate with the Michigan Law Enforcement Training Council and the Michigan Hazard Mitigation Coordinating Council to ensure adequate input from local governments and other law enforcement professionals." The specifics pertaining to the Council's involvement with the HSTF have yet to be worked out, but it is a safe assumption that mitigation of homeland security threats will become an important issue for the Council to consider in the coming months and years. The Council's implied partnership with the HSTF under Executive Directive 2002-1 may lead to a redefinition of the nature of traditional hazard mitigation activities to include projects and measures designed to reduce or eliminate the long-term risk from terrorist attacks.

HMGP Funding for Non-Compliant NFIP Communities

The issue of using Hazard Mitigation Grant Program (HMGP) funds for projects in non-compliant communities under the National Flood Insurance Program (NFIP) was raised by the MHMCC Special Projects Committee in 2001 when project selections were being made for Federal Disaster 1346-DR-MI. The Michigan Department of Environmental Quality investigated the matter with the Michigan Department of Attorney General and determined that violations that are older than two years will not be addressed by the Attorney General. The NFIP violations for the HMGP applicant in question originated nearly 10 years ago under a previous political administration in the community. After considering all sides of the issue, the Council decided to recommend to FEMA that HMGP funding for the community be approved. The Council also asked the MDEQ Land and Water Management Division to provide training to and work with the current community officials to bring the community back into full NFIP compliance.

Revising Michigan Rehabilitation Code Rules to Include Hazard Mitigation

The MHMCC Legislative Committee presented its comments on proposed changes in the Michigan Rehabilitation Code Rules to the Bureau of Construction Codes, Michigan Department of Consumer and Industry Services. The Legislative Committee advocated for the inclusion of hazard mitigation provisions in the amended rules, the primary concerns being that the code require the identification of risks that affect a structure proposed for rehabilitation, that those risks be disclosed to those undertaking the rehabilitation, and that the rehabilitation address the risks identified. The Legislative Committee also suggested other hazard mitigation issues (some of which are addressed in new construction codes) that could also be addressed in the rehabilitation code, including:

- Consideration of snow loads in construction materials;
- Windproofing of rehabilitated structures;
- Floodproofing or flood protection for structures in floodprone areas and prohibition of rehabilitation for structures in floodways;
- Proximity to technological hazard areas, including hazardous material facilities, transportation hazards, etc.
- Location in the hydraulic shadow of dams;
- High risk Great Lakes shoreline erosion areas; and
- The burial of utility lines.

The Bureau of Construction Codes will consider the Council's recommendations in its rulemaking efforts.

April 17, 2002 Meeting

The April 17 meeting was cancelled due to EMD/MSP staff involvement in the flood disaster in the central and western Upper Peninsula that occurred during the week of April 15. The flooding resulted in a Presidential Major Disaster Declaration on May 6, 2002 that included the counties of Baraga, Gogebic, Houghton, Marquette, and Ontonagon. On May 24, Iron County and the Keweenaw Bay Indian Community were added to the original declaration. (Refer to the Hazard Mitigation Strategy for Federal Disaster 1413-DR-MI, an attachment to this report, for background information on the hazard mitigation activities being considered or undertaken as a result of this flooding disaster.)

June 19, 2002 Meeting

The June 20 meeting focused on three primary topics: 1) Federal Disaster 1413-DR-MI; 2) the Council's Ten "Most Wanted" Hazard Mitigation Measures; and 3) reorganization of the Council's committee structure. (See descriptions below.)

The Council was briefed on the Pottersville train derailment that occurred in late May, which forced a community wide evacuation of 2,200 residents for five days. No specific mitigation measures were recommended in this incident, although the railroad company took steps to strengthen the damaged section of track to minimize the possibility of future derailments at that site.

The Public Education and Legislative Committees gave updates on a few of their ongoing projects, most notably the statewide mitigation marketing project and the revision of state building codes to address specific mitigation concerns. The Legislative Committee also reported that FEMA is expected to get a significant increase in funding for floodplain map modernization. The Michigan Department of Environmental Quality / Land and Water Management Division (MDEQ/LWMD) administers the floodplain mapping program in Michigan. According to the MDEQ/LWMD, 1,200 of the 1,776 local communities in Michigan currently do not have Flood Insurance Rate Maps (FIRMs). The increase in federal map modernization funding should greatly assist in reducing that map deficit in the coming years.

Karen Totzke, EMD/MSP Project Impact Coordinator, reported on the status of the state's four Project Impact grants. Midland County has closed out their grant, and Ottawa County is in the final stages of grant closeout. The City of Dearborn has received a one-year extension on their grant. Ingham County, the state's fourth and final Project Impact Community, is in the beginning stages of their Project Impact effort. (See "Hazard Mitigation Success Stories: Project Impact Communities," an attachment to this report.) Karen Totzke also provided an overview of the new Pre-Disaster Mitigation Program (PDMP), which will provide Michigan with

approximately \$500,000 per year to fund various types of mitigation projects. The emphasis for the FY 02 funding will be on developing hazard mitigation plans for local communities.

The Council was also briefed on the revised Michigan Emergency Management Act (390 PA 1976, as amended by 50 PA 1990 and 132 PA 2002). The revised Act strengthens the role of hazard mitigation as one of the four phases of emergency management, in addition to addressing a number of other deficiencies identified in the earlier versions of the Act. The revised Act also has provisions to enhance the State's capabilities to prevent, respond to, and recover from acts of terrorism.

Federal Disaster 1413-DR-MI

The Council was briefed on the flooding disaster that occurred in the central and western Upper Peninsula in mid-April, which resulted in a Presidential Major Disaster Declaration (1413-DR-MI) for six counties and the Keweenaw Bay Indian Community. The six declared counties included Baraga, Gogebic, Houghton, Iron, Marquette and Ontonagon. The Major Disaster Declaration made available several types of federal disaster relief assistance, including Public Assistance and Hazard Mitigation Assistance from FEMA, Small Business Administration (SBA) Disaster Loans, and Natural Resource Conservation Service (NRCS) and U.S. Army Corp of Engineers (USACE) grants and technical assistance.

The Council was also briefed on its responsibilities relating to the identification, review, prioritization, and selection of projects for funding consideration under the Hazard Mitigation Grant Program (HMGP), activated by FEMA for this disaster. The Council had an opportunity to review the Hazard Mitigation Strategy developed for the disaster by the EMD/MSP Mitigation Unit. This strategy – the development of which is required as a condition of receiving the HMGP funding – will be incorporated into the Michigan Hazard Mitigation Plan (MHMP) as a disaster-specific addendum. (See “Hazard Mitigation Strategy for Federal Disaster 1413-DR-MI,” an attachment to this report.)

Michigan's “Most Wanted” Hazard Mitigation Measures

The EMD/MSP Mitigation Unit staff proposed that the Council develop and publish an annual list of its “most wanted” hazard mitigation measures as a way of conveying the Council's top priorities for needed improvements in Michigan. This list would be published in the Council's Annual Report of Activities and would be similar in format to similar lists published by the Institute for Business and Home Safety (IBHS) and the National Transportation Safety Board (NTSB). The measures listed could include 1) new or amended legislation, programs or programmatic requirements, rules / regulations, or processes, 2) physical enhancements, 3) public education initiatives, or 4) combinations of the above. The “most wanted” list would correspond closely with the priority measures identified in the Michigan Hazard Mitigation Plan. The list would be amended annually to reflect current state and local priorities and conditions. As recommended measures are implemented, they would be removed from the list and replaced with other top priority measures. The list will be an important way for the Council to convey its top priorities to governmental agencies, business and industry, the media, and the general public in an easily understandable manner. The Council's initial “most wanted” list can be found on page 23.

Reorganization of Council Committee Structure

A proposed reorganization of the Council's five operating committees was discussed. The Council and the EMD/MSP Mitigation Unit staff decided that each committee should consist of three Council members and two EMD/MSP staff members. Committees could be expanded beyond five persons if the need arises, but the 3:2 Council member to staff ratio should be maintained. The revised operating committee structure can be found on pages 9-10, along with a list of each committee's top two or three work priorities for 2003 and beyond.

August 21, 2002 Meeting

The August 21, 2002 meeting focused almost entirely on the various funding allocation strategies that could be employed for the Hazard Mitigation Grant Program (HMGP) for Federal Disaster 1413-DR-MI (see below). The Council was also briefed on a potential dam failure at the Hershey Dam in Osceola County, which is being caused by an eroding embankment. The Council determined that it does not have much of a role at this time in solving the problems at the dam. However, the Michigan Department of Environmental Quality / Land and

Water Management Division is working with community officials to develop a plan of action for addressing the major structural and maintenance concerns with the dam.

Expanding Mitigation Training Opportunities

The Planning Committee briefed the Council on its continuing efforts to expand mitigation outreach training to planners and other allied professions such as architects, plan reviewers, code enforcement officials, and building inspectors. In light of the limited number of staff at the EMD/MSP to conduct training, the Committee suggested that the EMD/MSP explore the idea of using contractual staff to conduct some of the needed training – perhaps using the HMGP as a funding source. The EMD/MSP will explore that option in the coming months. The Committee Chair, Dr. William Wagoner, also presented information on a joint American Planning Association (APA) / FEMA conference held in Kalamazoo on October 4, 2002 to promote the development of local and state hazard mitigation plans under the Disaster Mitigation Act of 2000. This conference was one of only two national APA / FEMA pilot conferences held in 2002 – the other being held in Florida in September. Dr. Wagoner was instrumental in developing the format and content of this conference, and in bringing it to Michigan. Mike Sobocinski, Local Mitigation Planner for the EMD/MSP Mitigation Unit, presented information at the conference on Michigan's statewide mitigation planning efforts under the HMGP for Federal Disaster 1346-DR-MI.

Allocation Strategies for the HMGP for Federal Disaster 1413-DR-MI

EMD/MSP Mitigation Unit staff briefed the Council on the mitigation funding situation for Federal Disaster 1413-DR-MI. Based on the initial estimates for Public Assistance grants for the disaster, Michigan was slated to receive approximately \$1.5 million in HMGP funding. The \$1.5 million HMGP allotment was calculated at 15% of the total estimated Public Assistance funds to be provided in the disaster. (Note: the HMGP amount was subsequently reduced to \$756,000 after the Public Assistance grant tally was finalized in the fall of 2002.)

Doran Duckworth of the EMD/MSP Mitigation Unit presented six possible allocation strategies that the Council could use in determining how to best utilize the HMGP funds for the disaster. The Council was asked to review the pros and cons of each option and then offer their comments and recommendations to the EMD/MSP Mitigation Unit regarding how the allocation of funds should be carried out.

(Note: based on the Council's input, it was determined that 50% of the available HMGP funds will be spent on projects in the six-county declared area, and the remainder of the funding would be made available statewide for drainage improvement projects – a high priority within the Michigan Hazard Mitigation Plan. A notice of funds availability was distributed statewide on September 19, 2002, with project applications due back to the EMD/MSP by November 22, 2002. A copy of that funds availability notice can be found on page 38. A summary of the allocation strategies considered for this disaster can be found on page 35.)

October 23, 2002 Meeting

The October 23, 2002 meeting picked up where the August 21 meeting left off, with the discussion again focused on the allocation of HMGP funds for Federal Disaster 1413-DR-MI. In addition, two retiring council members were recognized for their service and contributions to the Council, a new hazard mitigation grant management handbook was introduced, and the revised draft of the Michigan Hazard Mitigation Plan was discussed:

Use of State 5% Discretionary Funding for HMGP for Federal Disaster 1413-DR-MI

The EMD/MSP Mitigation Unit staff requested that the Council consider using the State's 5% Discretionary Funding allocation under the HMGP to implement projects that are listed as high priority in the draft Michigan Hazard Mitigation Plan. One of the projects is the Michigan "Safety House" demonstration model first presented to the Council in 2001 in a concept paper written by Doran Duckworth, EMD/MSP Mitigation Unit Supervisor. (Refer to the 2001 Annual Report of Activities, pages 9-10, for background information on this project.) The EMD/MSP Mitigation Unit staff suggested that the tabletop model option could be implemented for a few thousand dollars, and with proper care could be used at training classes, home and safety shows, conferences, museums, fairs, sporting events and other public events for many years. The lone stumbling block might be lack of staff time to do the necessary design work and properly manage the project from start to finish, given the Unit's other competing priorities. The Council decided to have the Mitigation Unit staff meet with the various operating committees to discuss possible options for the 5% funding. The Council also decided that it

would first look at projects submitted for 5% funding by local communities before deciding if the funding should be devoted to projects identified in the MHMP.

New Hazard Mitigation Grant Handbook

The EMD/MSP Mitigation Unit provided Council members with a copy of the new EMD/MSP Publication 920, "Hazard Mitigation Grant Handbook," and briefed on its contents. The new handbook consolidates grant management information for three grant programs – the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance Program (FMAP), and Pre-Disaster Mitigation Program (PDMP) – into a single, comprehensive guidance document for applicants to any of these programs. The new handbook was distributed statewide (in both hardcopy and electronic format) to local governments, state agencies, and certified Indian Tribes, and posted on the EMD/MSP web site for viewing and downloading. The grant management procedures outlined in EMD/MSP Publication 920 are based on the procedures contained in the State's larger (and federally approved) Administrative Plans for the three grant programs. A brief excerpt from EMD/MSP Publication 920 can be found on page 24.

Recognition Ceremony for Retiring Council Members

Two retiring Council members, George Hosek of the Michigan Department of Environmental Quality and Ed Hagan of the Michigan Department of Natural Resources, were presented with plaques in appreciation for their dedicated service and valuable contributions to the Council since its creation in 1998. Mr. Hosek and Mr. Hagan both retired from state service on October 31, 2002. Their knowledge, experience and insight will be sorely missed.



Capt. John Ort (center) presents plaques to George Hosek (left) and Ed Hagan (right).

December 19, 2002 Meeting

The December 19, 2002 meeting was cancelled due to the EMD/MSP's involvement in a series of regional smallpox preparedness meetings held prior to President Bush's announcement of the national smallpox inoculation program.

2003 AND BEYOND: FUTURE DIRECTIONS

In 2003, the Council will focus its efforts on the major projects it started in 2001 and 2002 related to identification and development of mitigation projects, state and local mitigation plan development, marketing mitigation to key target groups, repetitive flood loss reduction, and mitigation financing:

2003 Meeting Schedule

In 2003, the Council will hold its regular meetings at 1:30 PM, on the following dates, in the Terrace Room at the EMD/MSP offices, 4000 Collins Road in Lansing:

- January 15, 2003
- March 19, 2003
- May 21, 2003
- July 16, 2003
- September 17, 2003
- November 19, 2003

2003 Committee Structure and Top Priorities

Finance Committee

1. Develop protocols for establishing public-private partnerships and receiving partner contributions.
2. Study the feasibility of developing a State Hazard Mitigation Fund to provide seed money to local communities and state agencies wishing to undertake mitigation initiatives. Determine possible funding sources for such a fund.

Finance Committee Membership

Capt. John Ort
Okey Eneli
Kevin Thomason
Eileen Phifer
Matt Schnepf (EMD/MSP)
Christine Wroblewski (EMD/MSP)

Legislative Committee

1. Study the need for a requirement to have all colleges / universities and K-12 schools to adhere to the provisions of the State Construction Code and third party inspections.
2. Study the feasibility of amending Part 31 of the State Floodplain Regulatory Authority to address concerns pertaining to permits for filling for construction within the floodplain of inland lakes.
3. Study the feasibility of amending Part 31 of the State Floodplain Regulatory Authority to address the "grandfather" clause that allows continued floodway occupation as long as the size of the structure is not increased.

Legislative Committee Membership

Capt. John Ort
Okey Eneli
MDEQ Representative (replacing George Hosek)
Tony Sanfilippo
Karen Totzke (EMD/MSP)
Matt Schnepf (EMD/MSP)

Planning Committee

1. Develop detailed, comprehensive hazard analyses and hazard mitigation plans in all local emergency management program jurisdictions in Michigan to address risk and vulnerability for all pertinent natural, technological and human related hazards.
2. Integrate hazard mitigation into the comprehensive planning process at the local and regional levels through plan development activities, training / education, coordination, and possibly state legislation.
3. Complete the revision to the Michigan Hazard Mitigation Plan and submit the plan to FEMA for certification under the Disaster Mitigation Act of 2000.

Planning Committee Membership

Dr. William Wagoner

William Smith

MDNR Representative (replacing Ed Hagan)

Robert Tarrant

Doran Duckworth (EMD/MSP)

Mike Sobocinski (EMD/MSP)

Public Education Committee

1. Increase awareness of hazard related dangers and mitigation solutions by marketing mitigation to key target groups (a project under the HMGP for Federal Disaster 1346-DR-MI).
2. Develop and widely publish a recommended listing of “safety gifts” that could be purchased for Christmas, birthdays, and other special occasions, to improve personal and family safety in a disaster or emergency.
3. Study the feasibility of integrating existing hazard awareness campaigns into one safety promotion campaign that addresses hazard mitigation, crime prevention, fire safety, traffic safety, school safety, etc.
4. Create a Mitigation Achievement Award to formally recognize individuals or communities that do something outstanding in mitigation. Develop award criteria and eligibility requirements.

Public Education Committee Membership

Eileen Phifer

Kevin Thomason

Tony Sanfilippo

Karen Totzke (EMD/MSP)

Matt Schnepp (EMD/MSP)

Special Projects Committee

1. Develop and construct a Michigan “Safety House” demonstration model to provide a training and information tool for builders, building officials, community planners, other design and construction professionals, and the general public on safe, sustainable, and disaster resistant building materials and construction techniques.
2. To the extent possible, implement appropriate mitigation measures to protect state facilities and critical infrastructure from acts of sabotage and terrorism.
3. Increase the statewide NFIP policy base to more accurately reflect the flood hazard threat in Michigan.
4. Review, prioritize, and recommend projects for Hazard Mitigation Grant Program (HMGP) funding consideration under Federal Disaster 1413-DR-MI.
5. Review, prioritize, and recommend projects for Flood Mitigation Assistance Program (FMAP) and Pre-Disaster Mitigation Program (PDMP) funding for Fiscal Year 2003.

Special Projects Committee Membership

MDEQ Representative (replacing George Hosek)

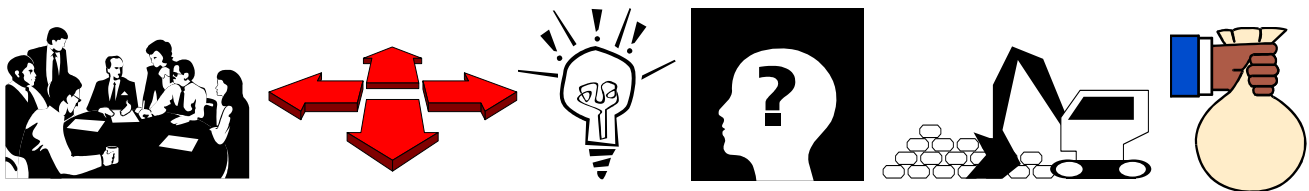
William Smith

Robert Tarrant

Matt Schnepp (EMD/MSP)

Karen Totzke (EMD/MSP)

Project Identification and Development



During 2003, the MHMCC Special Projects Committee will have the responsibility to identify, review, prioritize and select mitigation projects for funding consideration under three grant programs – the Hazard Mitigation

Grant Program (HMGP) for Federal Disaster 1413-DR-MI, and the Flood Mitigation Assistance Program (FMAP) and Pre-Disaster Mitigation Program (PDMP) for Fiscal Year 2003:

HMGP for Federal Disaster 1413-DR-MI

The EMD/MSP Mitigation Unit received a total of 58 project applications, totaling nearly \$12.8 million in project costs, for HMGP funding consideration under Federal Disaster 1413-DR-MI. The final HMGP allocation for 1413-DR-MI is approximately \$750,000. The MHMCC Special Projects Committee will meet in early 2003 to review and prioritize the 58 project applications and recommend for Council approval those projects determined to be most desirable for funding under this grant. Once the full Council approves the recommended projects, the project applications will be submitted to FEMA for final funding approval. Once FEMA approval is received, work on the projects can begin.

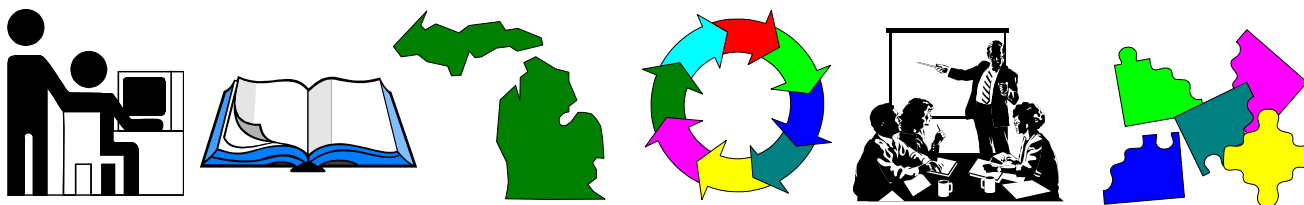
FMAP and PDMP for Fiscal Year 2003

The notice of funds availability for the FMAP for Fiscal Year 2003 was distributed to eligible applicants statewide on October 23, 2002. The FMAP funding allocation for Michigan for Fiscal Year 2003 is expected to be approximately \$140,000. The deadline for submitting applications for Planning Grants to the EMD/MSP was December 27, 2002. (Two applications were received.) The deadline for submitting applications for Project Grants is March 14, 2003. Once all applications are received, the MHMCC Special Projects Committee will meet to review, prioritize, and recommend for funding consideration those determined to be most desirable for funding under this grant. Final funding decisions are expected in the early spring of 2003.

At the time of this writing, the federal guidance for the PDMP for Fiscal Year 2003 had not yet been released. Once that guidance is issued, the EMD/MSP Mitigation Unit will disseminate a notice of funds availability to eligible applicants and solicit project applications in a manner similar to that used for the FMAP. The MHMCC Special Projects Committee will review, prioritize and recommend projects for funding consideration. Final funding decisions are expected in the late spring or early summer of 2003. The PDMP funding allocation for Michigan for Fiscal Year 2003 is expected to be approximately \$500,000.

Copies of the notices of funding availability for the HMGP and FMAP can be found on pages 38-41.

State and Local Mitigation Plan Development



Statewide Mitigation Planning Project

The EMD/MSP Mitigation Unit has been actively promoting the development of local hazard mitigation plans for the past several years. That planning effort got a major boost in November 2001 when FEMA authorized states to use up to 7% of their available HMGP allocation for the development of state, local or tribal government hazard mitigation plans. This new provision under the Disaster Mitigation Act of 2000 allowed Michigan to devote 7% (\$2.3 million) of the available HMGP funds under Federal Disaster 1346 (\$33.2 million in federal funds) to support mitigation plan development. The EMD/MSP Mitigation Unit has used the \$2.3 million in available funds to establish a statewide hazard mitigation planning program. In addition, nearly \$500,000 in PDMP funds (from Fiscal Year 2002) has also been allocated to the development of plans.

The goal of this program is to develop multi-hazard mitigation plans in all emergency management program jurisdictions in Michigan (all counties and most major municipalities) by the end of 2004. This is not only good emergency management practice and public policy, but more importantly it will help ensure that local jurisdictions and the State are eligible for and can utilize HMGP funds in future federally declared disasters. (Under the Disaster Mitigation Act of 2000, all applicants for HMGP funds must have an approved mitigation plan in place prior to being allocated funds. The statewide planning initiative will help ensure that those plans

The local plan development efforts are being coordinated with and through the 14 regional planning offices across the state, as well as with county and local planning offices, MSU Extension offices, colleges and universities, and other local and state offices. In areas where comprehensive planning activities are currently active, hazard mitigation planning will be integrated with those activities where possible. In areas without active planning efforts, the regional planning offices in many cases are being contracted with to perform such planning within their jurisdictional areas. Any areas unable to partner with existing planning activities may receive direct assistance from EMD/MSP Mitigation Unit staff.

Status of Local Hazard Mitigation Plan Development Project



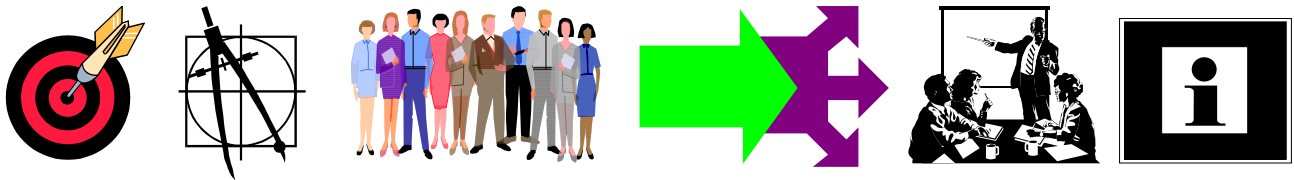
Michigan Hazard Mitigation Plan Revision

During 2001, the MHMCC operating committees thoroughly reviewed and re-prioritized their assigned objectives in the Michigan Hazard Mitigation Plan (MHMP). Currently, the plan has 67 specific objectives listed under four primary goals. Some of those objectives have been accomplished over the past two to three years through the proactive efforts of the Council, state and local agencies, and the EMD/MSP.

In 2002, the EMD/MSP Mitigation Unit and the Council began a major revision of the MHMP to bring it into compliance with the state mitigation plan requirements set forth in the Disaster Mitigation Act of 2000. The plan is being given a “facelift” with a revised format and new graphics and photographs throughout the document. In addition, the Hazard Mitigation Strategies from all recent federally declared disasters in Michigan are being incorporated into the plan. The plan will also have a new focus on reducing or eliminating the long-term risk and vulnerability of critical state owned facilities from natural, technological, and human-related hazards – including acts of sabotage / terrorism.

The federal deadline for completing state hazard mitigation plans under the Disaster Mitigation Act of 2000 is November 2004. However, the EMD/MSP Mitigation Unit staff intends to have the revised MHMP completed by the fall of 2003 and the final version ready for submittal to FEMA for approval in early 2004.

Marketing Mitigation to Key Target Groups



In 2002, the MHMCC Public Education Committee began work on a mitigation marketing and education campaign targeted at seven key groups that directly or indirectly influence hazard mitigation activities in local communities. The primary purposes of the campaign are to 1) educate the target groups about the importance of developing hazard mitigation activities, plans and procedures, 2) motivate them to undertake appropriate mitigation measures within their community, and 3) inform them of the many financial and technical assistance resources available to assist them with their mitigation activities. The seven target groups are:

- Local Emergency Managers
- Drain Commissioners
- Road Commissions
- Departments of Public Works
- Regional Planning Commissions
- Local Planning Departments
- Mayors and Other Elected Officials

The marketing project is being funded with a \$50,000 HMGP grant under Federal Disaster 1346-DR-MI, supplemented by an additional \$50,000 in PDMP funds from Fiscal Year 2002. In July 2002, the MHMCC Public Education Committee and EMD/MSP Mitigation Unit issued a Request for Proposal (RFP) for professional marketing services for this project. In October 2002, the EMD/MSP Mitigation Unit contracted with Zimmerfish Marketing Group, Inc., a Lansing based marketing and public relations firm, to develop the marketing strategy and products aimed at these seven target groups. Since beginning work on the project in late October, Zimmerfish has completed its “Situation Analysis” and (at the time of this writing) is working on a “Strategic Thinking Document” – the second step in a four step process. The project is slated for completion by October 2003.

Repetitive Flood Loss Reduction Project



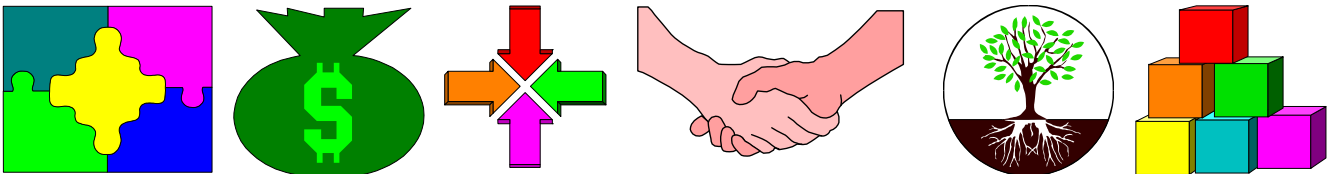
Reducing claims of repetitive flood loss properties under the National Flood Insurance Program (NFIP) is a major goal of both FEMA and the State of Michigan. In 2001, there were 456 properties on FEMA's list of repetitive flood loss properties in Michigan – properties on which there were two or more claims under the NFIP in a 10-year period. To help reduce the number of properties on that list, the EMD/MSP Mitigation Unit proposed allocating up to \$4 million in available HMGP funds under Federal Disaster 1346-DR-MI to elevate or acquire and remove as many of the structures as possible from those 456 properties. Elevating or acquiring / removing the structures will provide a permanent solution to the flooding concerns associated with the properties. The Council approved the repetitive flood loss properties project as proposed in 2001 and directed the EMD/MSP Mitigation Unit to begin implementation as soon as possible. Because of the significant need for HMGP funds for other high priority projects, the final federal allocation for this project was set at \$2 million.

In May 2002, the EMD/MSP Mitigation Unit and the Council issued a Request for Proposal (RFP) for a coordinator / facilitator for the project. In August 2002, the EMD/MSP Mitigation Unit contracted with Camp, Dresser & McKee, Inc. (CDM) to provide professional urban planning consulting services related to the execution and management of this project. CDM's duties as the coordinator / facilitator of this project include:

- Marketing the program to communities and owners of eligible properties
- Identifying owners interested in participating
- Developing all elements of the individual elevation and acquisition projects
- Monitoring project progress and actual construction
- Certifying project completion
- Developing an overall implementation plan for executing all deliverables
- Working closely with the EMD/MSP Mitigation Unit staff to complete all deliverables

The contract with CDM was executed on August 15, 2002. Since that time, CDM has made significant progress in implementing the project. At the time of this writing, CDM was concentrating its efforts in the Village of Estral Beach in Monroe County – a community with serious flooding problems and home to dozens of structures on the NFIP Repetitive Flood Loss Properties List. The project, slated for completion in September 2004, will be a major work project for the EMD/MSP Mitigation Unit and the Council during 2003 and 2004.

Mitigation Financing



In 2003, the Finance Committee will focus its efforts on developing and strengthening partnerships with governmental agencies and private industry to promote and finance hazard mitigation measures at the state and local levels. Building on the "Project Impact" model of public-private partnerships to create disaster resistant communities, the Finance Committee's top priority will be the development of protocols for establishing public-private partnerships and for receiving partner contributions – to include financial, material, and in-kind contributions. This is a critical first step in the Council's efforts to expand its relationship with the private sector and make maximum use of the myriad resources available from private sector partners.

EXECUTIVE ORDER No. 1998 – 5 (ELECTRONIC COPY)

MICHIGAN HAZARD MITIGATION COORDINATING COUNCIL

WHEREAS, hazard mitigation is defined as any action taken before, during, or after a disaster or emergency to permanently eliminate or reduce the long-term risk to human life and property from natural and technological hazards; and

WHEREAS, the State of Michigan recognizes the importance of preventing or lessening the damage and impact of disasters and emergencies through hazard mitigation; and

WHEREAS, state government has a unique role to play in coordinating the hazard mitigation activities of state and local governments; and

WHEREAS, increased coordination can assist in lowering future disaster relief expenditures and increasing the level of public safety for all Michigan communities; and

WHEREAS, it is appropriate that state government bring together technical experts from state and local government and private industry to foster and promote the implementation of hazard mitigation measures.

NOW, THEREFORE, I, John Engler, Governor of the State of Michigan, pursuant to the powers vested in me by the Constitution of the State of Michigan of 1963 and the laws of the State of Michigan, do hereby establish the Michigan Hazard Mitigation Coordinating Council.

1. The council shall be composed of the following members:
 - a. The Director of the Department of State Police, or his designee, who shall serve as chair;
 - b. The Director of the Department of Environmental Quality, or his designee;
 - c. The Director of the Department of Natural Resources, or his designee;
 - d. The Director of the Department of Agriculture, or his designee;
 - e. The Director of the Department of Consumer and Industry Services, or her designee;
 - f. The Director of the Department of Transportation, or his designee;
 - g. The Director of the Department of Management and Budget, or her designee;
 - h. One representative of the property and casualty insurance industry, who shall be appointed by the Governor and serve a 3-year term;
 - i. One representative of an urban planning association, who shall be appointed by the Governor and serve a 3-year term;
 - j. One representative of a local emergency management program, who shall be appointed by the Governor and serve a 3-year term.
2. The council shall perform the following responsibilities:
 - a. Assist in the development, maintenance, and implementation of a state hazard mitigation plan;
 - b. Assist in the development, maintenance, and implementation of guidance and informational materials to support hazard mitigation efforts of local and state government, and private entities;

c. Solicit, review and identify hazard mitigation projects for funding under section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93-288, as amended, and sections 553 and 554 of the National Flood Insurance Reform Act, P.L. 103-325;

d. Foster and promote, where appropriate, hazard mitigation principles and practices within local and state government, and with the general public.

3. The Department of State Police shall perform all administrative functions associated with the operation of the council, provide technical guidance for hazard mitigation planning and plan implementation, and act as liaison to the Federal Emergency Management Agency for project funding and program coordination.

4. The council may seek the expertise of other individuals, agencies, and organizations as it deems necessary to carry out its responsibilities.

5. The council may solicit, accept, and expend, subject to necessary legislative appropriations, funding received from the federal government and private individuals and organizations, for the purpose of implementing hazard mitigation projects and measures that are consistent with the state hazard mitigation plan. All such efforts shall be in compliance with existing state and federal laws and regulations, and must receive the approval of the Chair or his or her designee.

6. Members of the council shall not receive compensation, but members may receive necessary expenses for the performance of council functions, based on existing state rates.

The provisions of this Executive Order shall become effective upon filing.

Given under my hand and the Great Seal of the State of Michigan this 29th day of July, in the Year of our Lord, One Thousand Nine Hundred Ninety Eight.

(signed)
GOVERNOR

BY THE GOVERNOR:

(signed)
SECRETARY OF STATE

FILED WITH SECRETARY OF STATE CANDICE S. MILLER ON 7-29-98
AT 10:05AM

EXECUTIVE DIRECTIVE No. 2001 - 5 (ELECTRONIC COPY)

STATE FLOOD HAZARD MITIGATION

DATE: September 11, 2001

TO: All Directors and Agency Heads

FROM: Governor John Engler (signed)

SUBJECT: State Flood Hazard Mitigation

Recent flood events in Michigan are serious reminders that economic losses from flood damage can occur regardless of season and in spite of the current low Great Lakes water levels. Last September's flooding in southeast Michigan resulted in the most expensive Presidential Disaster Declaration in the history of the state of Michigan. The federal and state governments have expended more than \$200 million responding to this flood event.

The state of Michigan has extensive and continuous programs for the construction of buildings, roads and other facilities, which influence patterns of commercial, residential and industrial development in flood-prone areas. State agencies play an important role in avoiding the uneconomic, hazardous or unnecessary use of floodplains for activities that impair the beneficial functions of such areas. Furthermore, state agencies, leading by example, can provide local government and the public with a model that allows for optimum floodplain management and the mitigation of existing flood hazards.

Therefore, I direct the Department of Environmental Quality ("DEQ"), as the lead agency, to develop a statewide, inter-agency, flood mitigation strategy to assure compliance with the State Flood Hazard Mitigation Plan. In many respects, this strategy will involve the implementation of aspects of the State Flood Hazard Mitigation Plan, which was originally developed pursuant to the provisions of Executive Order 1977-4 issued by Governor William G. Milliken. The Michigan Hazard Mitigation Coordinating Council, an entity created by Executive Order 1998-5, currently assists in the development, maintenance and implementation of the State Flood Hazard Mitigation Plan.

The DEQ shall develop this strategy in cooperation with the Department of State Police, the Department of Consumer and Industry Services ("CIS"), the Department of Management and Budget ("DMB"), the Department of Transportation, and the Michigan Hazard Mitigation Coordinating Council. Other state departments and agencies shall cooperate in the development of the strategy as requested by DEQ.

In addition to general provisions implementing the State Flood Hazard Mitigation Plan, the mitigation strategy shall specifically include the following:

1. A review of administrative rules promulgated by DEQ found in Part 13 – Floodplains and Floodways, of the DEQ's Water Resources Protection rules, located at R. 323.1311 et seq. of the Michigan Administrative Code. This review shall determine if current regulations adequately prevent state activities that cause the loss of water storage capacity in the state's floodplains. Additionally, the review shall determine if current regulations provide adequate flood resistant construction standards for state riverine and inland lake floodplain construction activities. The strategy shall recommend changes in the applicable regulations when necessary and appropriate to assure compliance with the State Flood Hazard Mitigation Plan.
2. A review of administrative rules promulgated by DEQ entitled Great Lakes Shorelands located at R. 281.21 et seq. of the Michigan Administrative Code. This review shall determine if current regulations include adequate measures to assure flood resistant construction standards apply to state construction

activities in Great Lakes floodplains. The strategy shall recommend changes in the applicable regulations when necessary and appropriate to assure compliance with the State Flood Hazard Mitigation Plan.

3. A review of administrative rules promulgated by the Department of Consumer and Industry Services (“CIS”) addressing Land Divisions (R. 560.101 et seq.), Condominium Development (R. 559.101 et seq.) and Mobile Home Park Development (R. 325.3311 et seq.). This review shall determine if current regulations include adequate measures to prevent state development that would cause the state to incur flood damages for floods up to and including a 100-year flood. The strategy shall recommend changes in the applicable regulations when necessary and appropriate to assure compliance with the State Flood Hazard Mitigation Plan.

4. A review of the provisions of the Single State Construction Code Act, Act No. 245 of the Public Acts of 1999, being Section 125.1501 et seq. of the Michigan Compiled Laws, and any administrative rules promulgated by CIS under the act (R. 408.30101 et seq.). This review shall determine if state development in floodplain areas complies with the provisions of the Act and the administrative rules adopted pursuant to the Act. The strategy shall recommend changes in the applicable regulations when necessary and appropriate to assure compliance with the State Flood Hazard Mitigation Plan.

5. The establishment of a coordination mechanism between DMB and DEQ to assure that the construction of buildings and other state facilities avoids the use of flood-prone lands whenever possible and to assure that new state facilities are designed to minimize potential flood damage when necessary and appropriate.

6. The preparation and implementation of an educational program for the general public and local units of government focusing on the need to reduce flood damages.

Flood damage prevention is of great importance to the safety, health and welfare of our citizens. I am confident that state departments and agencies can and will assist in the development of a more effective flood mitigation strategy and thereby minimize the likelihood that state property will be damaged during future flood events.

Thank you for your cooperation.

STATE OF MICHIGAN
Executive Office * Lansing

EXECUTIVE ORDER 1977-4 (ELECTRONIC COPY)

STATE FLOOD HAZARD MITIGATION PLAN

WHEREAS, uneconomic uses of the State's flood plains are occurring and potential flood losses are increasing; and

WHEREAS, the State has extensive and continuing programs for the construction and reconstruction of buildings, roads, and other facilities and annually disposes of hundreds of land parcels that may be flood prone, all of which activities significantly influence patterns of commercial, residential, and industrial development; and

WHEREAS, State land use planning programs are determining factors in the utilization of lands; and

WHEREAS, the Federal Flood Disaster Protection Act of 1973 (P. L. 93-234) and the National Flood Insurance Program requires a state management plan;

NOW, THEREFORE, I, WILLIAM G. MILLIKEN, Governor of the State of Michigan, pursuant to the authority vested in me by the Michigan Constitution, laws of the State of Michigan, and the applicable provisions of P. L. 93-234, hereby order the following:

1. The Department of Natural Resources, Water Management Division is hereby designated as the state agency to supervise and administer the state flood hazard management program. Requests for information or technical assistance to implement the provisions of this Order shall be directed to the Water Management Division.
2. The heads of the State agencies shall provide leadership in encouraging a broad and unified effort to prevent uneconomic uses and development of the State's flood plains and, in particular, to lessen the risk of flood losses in connection with State lands and installations and State financed or supported improvements.
3. To implement this mandate, it is hereby ordered that:
 - a) All State agencies directly responsible for the construction of State buildings, structures, roads, or other facilities shall evaluate flood hazards when planning the location of new facilities and, as far as practicable, shall preclude the uneconomic, hazardous, or unnecessary use of flood plains in connection with such facilities.
 - b) With respect to existing State owned properties which have suffered flood damage or which may be subject thereto, the responsible agency head shall require conspicuous delineation of past and probable flood heights so as to assist in creating public awareness of the knowledge about flood hazards. Whenever practical and economically feasible, flood proofing measures shall be applied to existing facilities in order to reduce flood damage potential.
 - c) All State agencies responsible for the disposal of State lands or properties shall evaluate flood hazards in connection with lands or properties proposed for disposal to non-State public instrumentalities or private interests and, as may be desirable in order to minimize future public expenditures for flood protection and flood disaster relief and as far as practicable, shall attach appropriate restrictions with respect to uses of the lands or properties by the purchaser and his successors and may withhold such lands or properties from disposal.

- d) All State agencies responsible for programs which entail land use planning shall take flood hazards into account when evaluating plans and shall encourage land use appropriate to the degree of hazard involved.
- 4. All flood hazard evaluations shall be based upon a base flood that has a 1% chance of being equaled or exceeded in any given year, commonly known as a 100-year flood.
- 5. Proposals for new construction, substantial improvements or other developments or alteration within a flood hazard area shall be guided by the following standards:
 - a) Encroachments within the floodway of a stream that would result in any increase in flood stage shall be prohibited unless approved by the Department of Natural Resources.
 - b) All new construction and substantial improvements shall have the lowest floor (including basement) elevated to or above the base flood level. Non-residential construction may be designed with attendant utility and sanitary facilities so that below the base flood level, the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capacity of resisting hydrostatic and hydrodynamic loads and effects of buoyance. Any utilization of flood proofing techniques shall require a certification from a registered engineer or architect that the flood proofing methods are adequate to withstand the flood depths, hydrostatic pressures, velocities, impact, and uplift pressures associated with the base flood. All certificates indicating the elevation at mean sea level datum to which such structures are flood proofed shall be kept on record within the State agency responsible for the structure.
- 6. Requests for appropriations for State construction of new buildings, structures, roads, or other facilities shall be accompanied by a statement by the head of the agency on the findings of his agency's evaluation and consideration of flood hazards in the development of such requests. If the construction is in a flood prone area, the statement shall contain a letter of non-objection from the Department of Natural Resources.
- 7. The State agencies shall proceed immediately to develop such procedures, regulations, and information as are provided for in, or may be necessary to carry out, the provisions of this Order.

Given under my hand and the Great Seal of the State of Michigan this Thirteenth day of May in the Year of Our Lord, One Thousand Nine Hundred and Seventy-Seven and of the Commonwealth One Hundred Forty-One.

(signed by William G. Milliken)
GOVERNOR

BY THE GOVERNOR:

(signed by Richard H. Austin)
Secretary of State

EXECUTIVE DIRECTIVE No. 2002 - 1 (ELECTRONIC COPY)

HOMELAND SECURITY

DATE: January 24, 2002

TO: All Directors and Agency Heads

FROM: Governor John Engler (signed)

SUBJECT: Homeland Security

The terrorist attacks of September 11, 2001, struck at the very heart of the American homeland. While the state of Michigan was not a direct target of those attacks, our focus must remain on protecting ourselves to the extent that we can and ensuring our ability to respond if more attacks occur. In the aftermath, we have an obligation and an opportunity to reassure the citizens of Michigan that their government leaders are taking the necessary steps to address the state's homeland security and safety concerns. Mindful that we must work within the framework of a free and open society, we recognize the need to enhance and implement additional safeguards for the well-being of the citizens of this state.

The Michigan Emergency Management Act, Public Act 390 of 1976, being Section 30.401 *et seq.* of the Michigan Compiled Laws ("EMA"), governs emergency management in the state of Michigan. The EMA prescribes the power and duties of the Governor and certain state and local agencies and officials related to preparing for, responding to, recovering from, and mitigating disasters and emergencies, and it establishes the organizational framework for the emergency management system used in this state. The EMA also encompasses homeland security, covering within its scope threats "resulting from...human-made cause, including...terrorist activities."

As directed by the EMA, the Director of the Department of State Police is also the State Director of Emergency Management. Further, the EMA established the Emergency Management Division within the Department of State Police to coordinate the state's comprehensive emergency management activities for all emergencies and disasters. The commanding officer of the Emergency Management Division serves as Deputy State Director of Emergency Management. Under the terms of the EMA, all other state departments and agencies are directed to cooperate with the Emergency Management Division.

In accordance with the EMA and to further enhance homeland security in the state of Michigan, I hereby direct the following:

1. The State Director of Emergency Management will also act as State Director of Homeland Security.
2. The Emergency Management Division of the Michigan State Police shall continue to serve as the focal point for all issues related to Homeland Security to ensure that actions taken by the state are carried out in a coordinated manner.
3. The State Director of Homeland Security or his designee will continue to act as the chairperson for the Michigan Homeland Security Task Force (formerly known as the Michigan Anti-Terrorism Task Force).
4. The State Director of Homeland Security will serve as my advisor on matters related to the mission of the Michigan Homeland Security Task Force.
5. The mission of the Michigan Homeland Security Task Force shall be:

“To ensure the coordination of all homeland security-related actions across a broad spectrum of federal, state, local and private organizations and to advance the effective development and implementation of a state homeland security strategy that contains explicit goals and objectives.”

6. The Michigan Homeland Security Task Force shall refine and update the state’s domestic preparedness and homeland security strategy, building upon existing emergency management systems, plans and initiatives.

7. The Michigan Homeland Security Task Force shall continue to strengthen the state of Michigan’s capabilities to detect, prepare for, prevent, protect against, respond to, and recover from any terrorist threats or attacks within the state.

8. The Michigan Homeland Security Task Force shall collaborate with the Michigan Law Enforcement Training Council and the Michigan Hazard Mitigation Coordinating Council to ensure adequate input from local governments and other law enforcement professionals.

9. All Department Directors and Agency Heads shall continue to actively support the Michigan Homeland Security Task Force by:

- Assigning key personnel (at the request of the task force chairperson) to actively participate on the task force in the development and implementation of the strategy and its goals and objectives.
- Ensuring implementation of the task force goals and objectives identified as requiring action by your department.

The active collaboration in these efforts by all Department Directors and Agency Heads will ensure that the state of Michigan’s already strong emergency management system will be better prepared to respond to any terrorist threats or attacks against our homeland.

Thank you for your cooperation.



Michigan Hazard Mitigation Coordinating Council Michigan's "Most Wanted" Hazard Mitigation Measures

1. Development and implementation of multi-hazard mitigation plans in every emergency management program jurisdiction in Michigan – preferably integrated into the community's Comprehensive Plan – so that hazard risk and vulnerability reduction is a consideration in every community development decision made in Michigan.
2. Removal of all residential and commercial structures from floodways of Michigan rivers, streams and lakes.
3. Elevation or acquisition / relocation of all structures on the National Flood Insurance Program (NFIP) repetitive flood loss properties list for Michigan.
4. Completion of SARA Title III offsite emergency response plans for all designated Section 302 sites in Michigan (pursuant to Public Law 99-499, dated October 17, 1986).
5. Development of adequate onsite shelters in all designated mobile / manufactured home parks in Michigan to protect residents against severe weather.
6. Rules / regulations governing development within the identified hydraulic "footprint" of designated "high" or "significant" hazard dams in Michigan.
7. Development of site emergency plans in all schools, hospitals and nursing homes, utilities, places of public assembly, businesses and other critical public and private facilities. These plans should address all relevant natural, technological, and human-related hazards (including acts of sabotage or violence).
8. Disaster-resistant public and private utility infrastructure that is able to provide non-interrupted, reliable service during severe weather events, temperature extremes, and occurrences of other natural, technological, and human-related disasters.
9. Widespread use of fire-resistant roofing and siding materials on, and "defensible space" around, structures located in urban-wildland intermix areas.
10. Development of NFIP-approved floodplain maps for all areas of Michigan currently unmapped, and revision of all existing floodplain maps in areas where substantial development has occurred since the maps were originally completed.
11. Development of adequate early warning systems that provide statewide coverage (indoor and outdoor) for all appropriate hazards in Michigan.
12. Implementation of appropriate mitigation measures to protect state facilities and critical local public facilities from acts of sabotage or terrorism. Such measures might include (but are not limited to) planning and training activities, personnel security enhancements, hardening of facilities, physical security enhancements, and security screening enhancements.



Hazard Mitigation Grant Handbook



A GUIDEBOOK TO THE FOLLOWING MITIGATION GRANT PROGRAMS:

- **HAZARD MITIGATION GRANT PROGRAM (HMGP)**
- **FLOOD MITIGATION ASSISTANCE PROGRAM (FMAP)**
- **PRE-DISASTER MITIGATION PROGRAM (PDMP)**

Excerpt from EMD/MSP Publication 920

HAZARD MITIGATION GRANT HANDBOOK

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PURPOSE OF THIS HANDBOOK

This document, EMD Publication 920 (Hazard Mitigation Grant Handbook), consolidates all relevant grant management information for the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance Program (FMAP), and Pre-Disaster Mitigation Program (PDMP) into a single, comprehensive guidance document. This document **replaces** EMD Publication 905 (Hazard Mitigation Grant Program Applicant Handbook), and EMD Publication 916 (Flood Mitigation Assistance Program Applicant Handbook), both dated August 1999. Please discard these old publications, as they are no longer valid.

The HMGP, FMAP and PDMP have many commonalities related to grant management and program implementation. Much of the information presented in this document pertains to all three of the grant programs. However, some sections or forms are for one program only. In those instances, the section or form has been color-coded as follows in the table of contents and text for ease of reference:

Hazard Mitigation Grant Program (HMGP) instructions and forms have been color-coded yellow.

Flood Mitigation Assistance Program (FMAP) instructions and forms have been color-coded blue.

Pre-Disaster Mitigation Program (PDMP) instructions and forms have been color-coded green.

This document and all relevant program forms can be accessed via the EMD/MSP web site at www.mspeemd.org. Please direct questions pertaining to this document or any of the grant programs to Matt Schnepf of the EMD/MSP Mitigation Unit at (517) 336-2040, e-mail at schnepfm1@michigan.gov.

Addendum to the Michigan Hazard Mitigation Plan for Federal Disaster 1413-DR-MI, Declared May 6, 2002

DISASTER HISTORY

Federal Disaster 1413-DR-MI was caused by the combined forces of unseasonably warm temperatures, rainfall, ice jams and an all-time record snowpack in the central and western Upper Peninsula. These forces collided on the weekend of April 13-14, 2002, causing rivers and streams throughout the area to swell out of their banks, flooding many areas in the five-county region over the course of the following week. All-time flood levels were recorded on several rivers and streams in the area. Gogebic County was particularly hard hit, especially in and around Ironwood, Wakefield, and Marenisco. The counties of Baraga, Houghton, Marquette and Ontonagon also sustained heavy damage to roads, bridges and other public facilities.

In response to the flooding, Governor John Engler declared a State of Disaster for Gogebic County on April 16, 2002 and activated the Michigan National Guard and numerous other state agencies to assist Gogebic County and other affected areas in responding to and recovering from the disaster. The Governor's State of Disaster Declaration was amended on April 30, 2002 to include the counties of Baraga, Houghton, Marquette and Ontonagon.

A joint federal/state/local Preliminary Damage Assessment (PDA) was conducted on April 22-24. That PDA indicated that the most severe impacts were to the cities of Ironwood and Wakefield in Gogebic County, and to the counties of Baraga and Marquette, although considerable flood damages were experienced in all five declared counties. The PDA teams identified 170 homes and businesses that incurred flood damage in the cities of Ironwood and Wakefield – 25 of which incurred major damage and likely will be eligible for SBA Disaster Loans. All totaled, the PDA teams identified over \$1.2 million in damages and impacts to individuals and homes/businesses, most of which occurred in the cities of Ironwood and Wakefield.

The PDA teams identified nearly \$11 million in damages and impacts to roads, bridges, culverts and other public facilities and services in the five-county impact area. Gogebic County incurred nearly \$7.8 million in public damage, the vast majority of which (\$6.7 million) was to roads and bridges. Marquette County had \$928,000 in public damage, of which \$739,000 was to roads and bridges. All of Baraga County's \$569,250 in public damage was to roads and bridges. Houghton County had over \$200,000 in road and bridge damage, and Ontonagon County had nearly \$70,000. These individual county figures do not include the damages to Federal-Aid roads and bridges, which totaled \$1 million for the five-county area.

On April 30, 2002, Governor John Engler submitted his letter of request to the President for federal disaster relief assistance for the affected counties. On May 6, 2002, President Bush granted that request and declared a Major Disaster for the counties of Baraga, Gogebic, Houghton, Marquette and Ontonagon. The President's Declaration made available Public Assistance and Hazard Mitigation Assistance, but not Individual Assistance. On May 8, Governor John Engler formally requested that the Small Business Administration (SBA) issue a Disaster Declaration for Gogebic County and activate its Disaster Loan Program for the residents of the county that incurred major flood damage. That declaration was granted by the SBA on May 10. The SBA Declaration for Gogebic County also makes low interest disaster loans available to affected residents in the contiguous counties of Iron and Ontonagon.

On May 10, 2002, Governor John Engler approved the addition of Iron County to his earlier State of Disaster Declarations issued on April 16 and April 30. On May 24, 2002, Iron County and the Keweenaw Bay Indian Community were added to the Presidential Major Disaster Declaration for Public Assistance at the request of the State of Michigan, and upon concurrence of FEMA.

AREA AFFECTED

The Presidential Major Disaster Declaration includes the counties of Baraga, Gogebic, Houghton, Iron, Marquette and Ontonagon, and the Keweenaw Bay Indian Community. The most serious impacts to individuals and homes/businesses occurred in the cities of Ironwood and Wakefield in Gogebic County. The most heavily impacted areas for public damages were the counties of Gogebic, Marquette and Baraga. In Gogebic County, the majority of the public damages occurred in or around the cities of Ironwood, Wakefield and Marenisco.

MITIGATION STRATEGY

The Federal Emergency Management Agency (FEMA) and the Emergency Management Division of the Michigan State Police (EMD/MSP) jointly developed a Mitigation Strategy for this Major Disaster Declaration that addresses the mitigation problems and opportunities unique to this event. (See attached Strategy.)

HMGP PROCEDURES

The Hazard Mitigation Grant Program (HMGP) has been activated for Federal Disaster 1413. The procedures outlined in the State of Michigan Administrative Plan for the Hazard Mitigation Grant Program will be followed in the implementation and administration of the program. In accordance with the HMGP State Administrative Plan provisions and Michigan Executive Order 1998-5, the EMD/MSP and the Michigan Hazard Mitigation Coordinating Council (MHMCC) will jointly carry out the HMGP project identification, prioritization, and selection processes.

Michigan has been a “Managing State” for the HMGP since October 2000. The FEMA and EMD/MSP have signed a joint Memorandum of Understanding outlining each party’s responsibilities in implementing and administering the HMGP in Michigan subsequent to a federally-declared disaster. The provisions of that MOU were incorporated into the State Administrative Plan for the HMGP and will be followed for Federal Disaster 1413.

MITIGATION STRATEGY - FEMA-1413-DR-MI

OBJECTIVE

The objective of mitigation is to reduce future disaster losses through acquisition and relocation of hazard-prone property, structural retrofitting, mitigation education of community officials and residents, wise land use and land development practices, prudent use of resources and funding, and encouragement of National Flood Insurance Program (NFIP) implementation and compliance, to name just a few measures that have been successful. To assist communities in Michigan with mitigation efforts, so that the environment is safer and has a reduced risk from disaster damage, the following objectives must be accomplished:

1. Mitigation opportunities will be identified and selected:
 - The initial mitigation opportunities and recommendations identified during the damage assessment process in many of the affected communities include the following:
 - A. Acquisition and relocation or retrofitting and flood proofing (including elevation) of substantially damaged structures located in flood prone areas.
 - B. Community outreach and education to promote flood proofing methods in residential and commercial structures, focusing on elevation and/or relocation of utilities and mechanical systems in basements or other vulnerable areas.
 - C. Applying the best methods to properly anchor and/or elevate or floodproof fuel oil tanks in home basements.
 - D. Floodproofing roads, bridges, culverts and other public facilities located in floodplains or other floodprone areas.
 - E. Armoring erosion prone streambanks to prevent sedimentation and to otherwise ensure maximum hydraulic capacity is maintained.
 - F. Assessing the need for initial or revised flood hazard mapping in selected communities.
2. Financial resources, including disaster assistance programs such as the HMGP and PAGP, and the funds from other state and federal programs, will be maximized:
 - Under the Public Assistance Grant Program, inspectors will make every effort to include appropriate mitigation measures in restoring damaged public facilities (on every project) – including the removal of disaster-caused debris from culverts and streambeds to ensure maximum hydraulic capacity.

- Under the Federal Highway Administration (FHWA) Emergency Relief Program, inspectors will make every effort to include appropriate mitigation measures in restoring damaged Federal-Aid roads and bridges.
 - Under the Small Business Administration, low interest loans can be acquired for repairs and mitigation upgrades to damaged structures.
 - Under the Natural Resource Conservation Service (NRCS) Emergency Watershed Program, appropriate mitigation measures will be implemented to remove any and all threats (urgent and compelling) resulting from sudden watershed impairment. In addition, supplemental funding will be requested to implement appropriate mitigation measures at other damaged, impacted or threatened sites (not considered urgent and compelling) that do not fall under the purview of the FEMA Public Assistance Grant Program or other programs.
 - The maximum seven-percent (7%) allotment of available HMGP funds will be earmarked by the State to facilitate the development of local hazard mitigation plans in the declared disaster area and in other communities in the region.
 - Under the HMGP, funds will be earmarked to acquire/relocate substantially damaged structures located in flood prone areas. In addition, FEMA will be requested to make available PAGP funds to cover the demolition and debris removal costs associated with these acquisitions.
 - Under the Pre-Disaster Mitigation Program (PDMP), funds will be made available as appropriate (at the discretion of the State) to support mitigation planning efforts in the declared area.
 - Voluntary organizations (i.e., Red Cross, Salvation Army, etc.) will be requested to provide (as appropriate and in keeping with their organizational mission) financial and other resources to promote and facilitate the implementation of mitigation measures in individual damaged homes.
3. Long-term mitigation will be ensured through comprehensive and prudent public health and safety measures (i.e., floodproofing utilities, mechanical systems, and basement fuel oil tanks in residences and businesses), local building practices, and floodplain management.

STRATEGY

The mitigation strategy for promoting and achieving hazard mitigation in this disaster will be focused on the following areas:

- Public health and safety measures.
- Community mitigation education and outreach.
- Coordination with the FEMA PAGP, the FHWA Emergency Relief Program, and the NRCS Emergency Watershed Program.
- Community administered floodproofing measures.
- Mitigation project development.
- National Flood Insurance Program promotion and flood hazard identification.
- Promoting disaster resistant communities through the Pre-Disaster Mitigation Program and through local mitigation plan development.

Public health and safety measures

- Assist community officials and residents in identifying appropriate floodproofing solutions for basement fuel oil tanks, utilities and other mechanical systems that will ensure public health and safety. The Michigan Hazard Mitigation Coordinating Council has a representative from the Michigan Department of Environmental Quality (MDEQ). Public health and safety issues pertaining to the flood damages in individual homes and businesses related to this disaster can be discussed at an upcoming MHMCC meeting and suggestions taken from the MDEQ representative. In addition, FEMA Disaster Assistance Employees

(DAEs) can provide written guidance materials directly to individual homeowners through community outreach at a Disaster Recovery Center (DRC), through the media, or through other appropriate avenues. (6/19/02)

Community mitigation education and outreach

- Coordinate with public and private agencies in the development of flood resistant building practices and a multi-hazard mitigation plan for each declared county. (12/27/02 – to initiate plan development discussions)
- FEMA should consider partnering with the SBA to provide information on the National Flood Insurance Program (NFIP) and floodproofing techniques for residential and commercial structures. This could be done at the SBA's Loan Assistance Office at the DFO and/or through one-on-one meetings with applicants and community officials. (5/31/02)
- Conduct workshops on the DMA 2000 planning requirements and mitigation plan development with regional and local planning agencies. (5/31/02)

Coordination with the Public Assistance Grant Program and other active relief programs

- Provide guidance to PAGP applicants that promotes mitigation and specifies the types of measures that are potentially eligible for funding under the PAGP. (5/17/02)
- Coordinate with FEMA PAGP inspectors to ensure that appropriate mitigation measures are allowed and specified for damaged roads, bridges, culverts and other public facilities – including the removal of disaster-caused debris from culverts and streambeds to ensure maximum hydraulic capacity. This is best achieved by having FEMA Mitigation DAEs (preferably) and/or state mitigation staff (as a backup) be part of the PAGP inspection teams sent out to survey damaged sites. In addition, FEMA Mitigation DAEs (preferably) and/or state mitigation and PAGP staff should review each damage report written by the PAGP inspectors to ensure that mitigation measures have been considered on every project. The FEMA Deputy Coordinating Officer (FCO) for Mitigation should also review the PAGP inspection report trends (i.e., the percent of all PAGP projects that have specified mitigation measures) to ensure that mitigation measures are being specified in all appropriate circumstances and for all appropriate types of projects. (5/31/02)
- Coordinate with FHWA inspectors to ensure that appropriate mitigation measures are being considered for damaged Federal-Aid roads and bridges being repaired under the FHWA Emergency Relief Program. This is best achieved by having the Michigan Department of Transportation (MDOT) representative in (or reporting to) the DFO to monitor and evaluate the decisions being made by FHWA inspectors in the field. If mitigation measures are not being considered, the FEMA Deputy FCO for Mitigation should contact the FHWA and request that mitigation be considered where appropriate and cost-effective. (5/31/02)
- Coordinate with NRCS inspectors to ensure that appropriate mitigation measures are being considered on all sites being restored under the NRCS Emergency Watershed Program and other activated programs. This is best achieved by having state mitigation staff monitor and evaluate the decisions being made by NRCS inspectors in the field and central office program staff in Lansing. If mitigation measures are not being considered, the FEMA Deputy FCO for Hazard Mitigation should contact the NRCS and request that mitigation be considered where appropriate and cost-effective. (5/31/02)
- Coordinate with the U.S. Army Corp of Engineers (USACE) on the possible development of flood control projects within or benefiting the declared area. (5/31/02)

Community-administered floodproofing measures

- Invite communities to establish and administer a locally based floodproofing program that would provide public education on proper floodproofing techniques, and provide grants to individual home and business owners wishing to retrofit their structures to reduce flood damage. The program could be implemented and administered by an existing local department, such as the building, planning or public works department,

who would be responsible for disbursing grants, monitoring work, providing technical assistance, and providing program status to the State. (8/30/02)

Note: floodproofing methods could include the following:

- Acquire and demolish/relocate floodprone structures.
- Elevate floodprone structures above the base flood level (100-year flood).
- Securely mount basement fuel oil tanks to prevent tank ruptures during flooding.
- Installation of standpipes, sewer backflow (check) valves, or revised plumbing to include an ejector or sump pump for basements.
- Raise electrical system components including service panels, meters, switches, and outlets that may easily be damaged by floodwater.
- Raise or relocate HVAC equipment, water heater, and washer/dryer.

Mitigation project development

- Information from the Preliminary Damage Assessment (PDA) will be used to help identify the communities that should be contacted concerning the possibility of mitigation opportunities under the Hazard Mitigation Grant Program (HMGP) and other state and federal programs. (8/30/02)
- Review the potentially damaged structure inventory from the PDA, concentrating primarily on structures that may have been substantially damaged. (5/31/02)
- Review the NFIP State Coordinator's information concerning the flood hazard identification and participation status of communities in the NFIP. (5/31/02) (Note: The NFIP State Coordinator has already provided this information to the EMD/MSP. As the table below indicates, in the five-county declared area there are a total of 12 NFIP participating communities and 105 NFIP policies in effect, totaling \$9.7 million in coverage.)

Flood Insurance Coverage in Affected Counties

COUNTY	Number of NFIP Policies in Effect	Number of NFIP Participating Communities	Total NFIP Coverage
Gogebic	12	3	\$ 994,700
Ontonagon	23	3	\$1,473,300
Baraga	20	2	\$1,785,700
Houghton	1	1	\$ 31,600
Marquette	49	3	\$5,448,600
TOTALS:	105	12	\$9,733,900

- Coordinate with the Michigan Economic Development Corporation, Michigan Department of Career Development, Michigan State Housing Development Authority, and other appropriate state agencies concerning communities with a substantial investment of state financial resources. (11/01/02)
- Whenever possible, incorporate mitigation projects into larger, ongoing or planned community projects (as long as the larger project will be completed in a timely manner and mitigation benefits can be fully retained). (Ongoing)
- Upon identification of communities suitable for mitigation, local officials will be contacted to determine the level of local interest in partnering towards recovery that will reduce the community's risk to future flooding. The Mitigation Team will be activated and conduct site visits with communities, as necessary, to gain commitment in developing projects and implementing appropriate mitigation measures. The

Mitigation Team will function as a technical resource to the community to help identify problems that should be addressed by the mitigation measure and identify financial assistance opportunities through federal, state and private sector programs.

NFIP promotion and flood hazard identification

- FEMA will collect and assess flood map upgrade needs data using the NFIP's Map Needs Update Support System database. Where no NFIP maps are available, the map needs data collection process shall include a community-wide assessment of flood damage potential according to NFIP standards. FEMA shall coordinate with the United States Geological Survey (USGS), the MDEQ, and the NFIP Regional Engineer to determine the need for collection of high water data. In addition, FEMA shall coordinate with PAGP inspection staff to determine where floodplain map data would enhance benefit-cost analysis for potential mitigation-induced project enhancements and prepare hydrologic and hydraulic analyses as required. Working in consultation with the NFIP State Coordinator, FEMA will identify areas where flood damage has occurred to residential or commercial building stock and prepare flood recovery maps as required to assist in rebuilding efforts that comply with minimum state and federal flood damage prevention standards. (12/27/02)
- MDEQ staff will provide technical assistance to local floodplain administrators as needed. (Ongoing)
- MDEQ staff will, as needed, conduct NFIP briefings to inform local floodplain administrators of NFIP responsibilities. (Ongoing)
- FEMA will mail letters to affected communities regarding immediate substantial damage determinations. (Ongoing)
- FEMA will identify (with MDEQ input) priorities for possible enforcement actions. (Ongoing)
- MDEQ, EMD/MSP and FEMA will review repetitive loss data for potential acquisition, elevation or floodproofing sites. (6/14/02)
- There is one NFIP sanctioned community (L'Anse Township) in the five-county disaster area. This community has applied to join the NFIP and should be eligible shortly.

Promoting disaster resistant communities through the Pre-Disaster Mitigation Program

- Coordinate the use of PDMP funds, as appropriate, to promote mitigation plan development to ensure less disaster damage in the future. (12/00)

MITIGATION STRATEGY TEAM MEMBERS

- If a mitigation component is established within the Disaster Field Office (DFO), the EMD/MSP will supply staff, as appropriate, to support the DFO mitigation efforts.
- The mitigation team will evaluate the mitigation projects proposed within Michigan and select those projects that will be funded under the Hazard Mitigation Grant Program. (8/30/02)

STATE OF MICHIGAN:

Doran Duckworth, EMD/MSP
Mitigation Unit Supervisor

Matt Schnepf, EMD/MSP
Assistant State Hazard Mitigation Officer

George Hosek
MDEQ Land and Water Management Division
National Floodplain Insurance Program Coordinator

Mike Sobocinski, EMD/MSP
Local Hazard Mitigation Planner

Karen Totzke, EMD/MSP
Project Impact/PDMP/MHMCC Coordinator

Bruce Menerey, P.E.
MDEQ Land and Water Management Division
Floodplain Management Specialist

Eileen Phifer, PEM
MDOT Maintenance Division
Emergency Management Coordinator

Jeff Friedle, P.E.
Michigan Department of Agriculture
Environmental Stewardship Division

Sandy Glazier, EMD/MSP
Public Assistance Officer

Angela Houseman, EMD/MSP
Administrative Assistant

Dawn Schulert, EMD/MSP
State Hazard Mitigation Officer
(available after July 8, 2002)

Bethany Hall, EMD/MSP
Manager, Mitigation and Recovery Section

MICHIGAN HAZARD MITIGATION COORDINATING COUNCIL (MHMCC) members:

Captain John Ort, Chair
MI Department of State Police,
Emergency Management Division

Mr. Edward Hagan
MI Department of Natural Resources,
Forest Management Division

Mr. Tony Sanfilippo
MI Department of Consumer and Industry Services,
Office of Fire Safety

Mr. Okey Eneli
MI Department of Management and Budget,
Office of Design and Construction

Dr. William D. Wagoner
Livingston County Emergency Management

Mr. George Hosek
MI Department of Environmental Quality,
Land and Water Management Division

Mr. Robert Tarrant (Appointment Pending)
MI Department of Agriculture,
Marketing and Communications Division

Ms. Eileen Phifer, PEM
MI Department of Transportation
Maintenance Division

Kevin Thomason
Property and Casualty Insurance Representative
State Farm Insurance Company

William Smith, Ottawa County Emergency Manager
Local Emergency Management Representative

FEDERAL EMERGENCY MANAGEMENT AGENCY:

Andrew Vlack
Federal Hazard Mitigation Officer (DFO)

Norbert Schwartz
Deputy Federal Coordinating Officer
For Hazard Mitigation (Chicago)

Pat Glithero
Federal Hazard Mitigation Officer (Chicago)

OTHER FEDERAL AGENCIES:

Al Herceg
Natural Resource Conservation Service (Lansing, MI)
U.S. Department of Agriculture

Bernie Huetter
Natural Resource Conservation Service (Marquette, MI)
U.S. Department of Agriculture

Sean Duffey
Natural Resource Conservation Service (Lansing,
MI)
U.S. Department of Agriculture

Jerry Doline
U.S. Army Corp of Engineers
Detroit District

SIGNED:

(signed)
NORBERT SCHWARTZ, FEMA V
DEPUTY FCO FOR MITIGATION

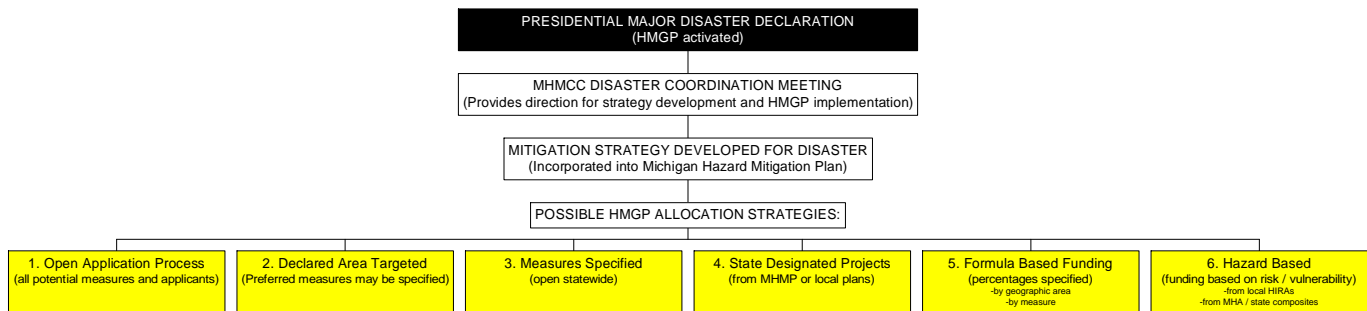
5-23-02
DATE

(signed)
DORAN DUCKWORTH, EMD/MSP
ACTING STATE HAZARD MITIGATION OFFICER

5-29-02
DATE

Possible Allocation Strategies for the Hazard Mitigation Grant Program for Federal Disaster 1413-DR-MI

The MHMCC is responsible for assisting the EMD/MSP in identifying, reviewing, prioritizing, and selecting projects for funding consideration under the HMGP. Before that can be done, the MHMCC must – in coordination with the EMD/MSP – select the allocation strategy that it feels is most appropriate for the disaster based on the disaster circumstances, the amount of HMGP funding available, the mitigation opportunities identified in the State’s Hazard Mitigation Strategy, and current state and local conditions. Essentially, there are six possible allocation strategies that could be employed, as follows:



Option 1: Open Application Process

Open to all potential measures and applicants statewide.

Implementation Considerations: This option requires statewide notification of the availability of the HMGP funding. Normally, that is done by 1) posting the grant information on the EMD/MSP web site; 2) sending correspondence to all local Emergency Managers, Indian Tribes, and United Way coordinating agencies; and 3) depending on disaster circumstances, sending correspondence to drain commissions, road commissions, and specific state agencies. Applicants typically have a 30-60 day window in which to submit applications. When this option has been employed in the past, it has resulted in large numbers of project applications (i.e., 400+ in one disaster). This option allows the greatest flexibility in terms of generating project ideas. However, it also requires a considerable amount of time and work in sorting through and categorizing the applications, reviewing them for eligibility and completeness, and ultimately scoring the applications.

The MHMCC Special Project Committee / State Selection Panel is activated and reviews, scores and prioritizes all applications received. The number and type of subject matter experts on the State Selection Panel is dependent on the nature of the applications received. Reviewing, scoring and prioritizing the applications could take several meetings to complete, depending on the number of applications being considered. The State Selection Panel recommends their selections to the full Council, which then approves or modifies the Panel’s recommendations. This option often results in a large number of projects, although that is not necessarily always the case. This option is probably best in terms of overall flexibility, but it is also the most time and labor intensive option for the Council and the EMD/MSP.

Option 2: Declared Area Targeted

The majority (or all) of the HMGP funding is targeted to affected communities in the declared area. The types of measures eligible for funding may or may not be specified.

Implementation Considerations: This option works well when the disaster caused significant damage and impacts in the declared area (creating a heightened sense of awareness and vulnerability) and sufficient mitigation opportunities have been identified in the Hazard Mitigation Strategy that would require HMGP funding to be implemented. This option also works well when the amount of available HMGP funding is relatively small (i.e., \$2 million or less). If this option is employed, the HMGP information is normally not posted on the EMD/MSP web site. Rather, direct notification is made via written correspondence, e-mail or telephone call to all affected local

Emergency Managers, Indian Tribes, United Way coordinating agencies, drain commissions, and road commissions. Depending on the number of counties involved, direct notification may also be made to the chief elected officials of the townships, cities and villages contained in those counties. Applicants have a shorter application submittal window – generally 30-45 days.

Potential projects are reviewed, scored and prioritized by the MHMCC Special Projects Committee and then presented to the full Council for approval or modification. This option is less flexible than Option 1, in that it restricts the potential applicants. However, it can provide much-needed mitigation funding to the area that was actually hit by the disaster, and there is a good possibility that the involved communities will be “motivated” to take action to reduce their disaster vulnerability. A potential downside to this option is that the affected communities may also be “tapped out” in terms of coming up with sufficient local funds to meet the 25% match requirement – especially if a considerable amount of work was done under the Public Assistance Grant Program (which has a 12 ½% match requirement).

Option 3: Measures Specified

Only certain types of projects / measures will be funded. Funding will be available statewide.

Implementation Considerations: Under this option, the list of acceptable projects for funding consideration is clearly spelled out, and no other project types will be funded. For example, the list of acceptable project types for a particular disaster may include acquisitions and elevations of floodprone properties, drainage enhancements, early warning sirens, and nothing else. The types of projects / measures selected for funding by the MHMCC are based on priorities established by FEMA, priorities established in the Michigan Hazard Mitigation Plan, the situational circumstances of the disaster, state and local conditions, or any combination of these. Applicants have a 30-60 day window in which to submit applications.

This option restricts the range of possible mitigation measures that can be funded. However, in doing that, it forces applicants to focus on those measures and projects that have been determined to be a priority by FEMA or the State. In that sense, the program funding is devoted to those projects / measures that have been deemed to be most important at the time of the disaster, thereby maximizing the effectiveness of the limited mitigation funding available.

This option will generate a considerably smaller number of projects than Option 1, thereby reducing the amount of time and effort required to review, score and prioritize the applications. However, it also leaves less “margin for error” in the event some projects fall out of consideration because they are determined to be ineligible.

Like Option 1, this option also requires statewide notification of the availability of the HMGP funding. That is done in the same manner as described in Option 1.

Option 4: State Designated Projects

Funding is used to implement projects identified in the Michigan Hazard Mitigation Plan and/or local, FEMA-approved mitigation plans. Funding is not advertised. State designations are based, at least in part, on the likelihood for success (i.e., cost sharing availability, history of successful projects in community, receptive and cooperative local officials, known need for project, etc.)

Implementation Considerations: This option uses available HMGP funding to implement projects already identified in local mitigation plans and the MHMP, thereby eliminating the need to solicit project ideas after the disaster. The MHMP contains many meritorious projects that would provide significant regional or statewide benefit. Local mitigation plans also have meritorious projects identified and prioritized, ready for implementation. More often than not, funding is the only element of the implementation equation that is missing.

As the number of FEMA-approved local hazard mitigation plans increases under the statewide mitigation planning project, this option will undoubtedly become more feasible. At the time of this revision (8/02), the number of completed local plans is very low. As a result, the only implementable projects are those that are outlined in the MHMP and the small number of approved local mitigation plans. Because the objectives and project ideas in the MHMP have already been prioritized by the full MHMCC, the MHMCC Special Projects Committee would only

have to select projects from among those that have received a priority rating of “HIGH.” State agency projects require a 25% match from the involved agency(ies), and the projects have to meet the benefit-cost and environmental requirements in order to be funded.

Option 5: Formula Based Allocation

Funding percentages are specified by:

- a) geographic area (i.e., 25% allocated to disaster area; 25% to another specific area; etc.);
- b) type of applicant (i.e., local governments, state agencies, private non-profits);
- c) specific agency or type of agency (i.e., road commissions, drain commissions, public works agencies);
- d) specific types of measures (i.e., acquisition of structures in floodways); or
- e) any combination of the above.

Implementation Considerations: This option targets available funds to meet the situational circumstances of the disaster. Numerous combinations of applicants, geographic areas, and types of measures could be specified. This option, which could aptly be dubbed the “mix and match” option, has flexibility in that it allows funds to be spread around to various areas and groups, thereby creating many “win-win” situations and many mitigation allies.

The notification and advertising requirements are dependent on the funding combination ultimately selected. For example, if 50% of the funding is allocated to the declared disaster area and 50% to drain commissions, then all counties in the declared area would be notified, as would all drain commissions in the state. Notification is made via written correspondence, e-mail or telephone call to all potential applicants. The EMD/MSP web site can be used if appropriate; however, many potential applicants may not regularly view the site so that would have to be taken into consideration. Applicants would have a 30-60 day window in which to submit applications.

Potential projects are reviewed, scored and prioritized by the MHMCC Special Projects Committee and then presented to the full Council for approval or modification. If specialized technical expertise is required to adequately perform this function, a State Selection Panel is assembled using appropriate subject matter experts from affected state agencies.

Option 6: Hazard Based Allocation

Funding based on Hazard Identification / Risk Assessments (HIRAs) completed by local jurisdictions or composite studies completed by state agencies (i.e., Michigan Hazard Analysis or other similar study). Communities with the greatest identified risks / vulnerabilities are allocated funding.

Implementation Considerations: This option is a viable way of allocating HMGP funds because funds are targeted to those geographic areas in which risk and vulnerability are greatest, thereby assuring that funding is going to help solve some of the State’s worst problems. Funding can be used to mitigate all problematic hazards faced by the jurisdiction, or the MHMCC can select one or two hazards for which funding would be targeted. Funding availability is not advertised, since the HIRA rankings determine the jurisdictions that will receive funding consideration. The jurisdictions are notified directly via written correspondence, e-mail or telephone call to the affected local Emergency Manager.

At the time of this writing (8/02), many local HIRAs have yet to be completed. However, the Michigan Hazard Analysis and other state or federal hazard studies can be used to determine those geographic areas / jurisdictions that have the greatest risk / vulnerability to various types of hazards. The MHMCC Special Projects Committee reviews the relevant documents and makes funding recommendations to the full Council, which approves or modifies the Committee’s recommendations.

NOTICE OF AVAILABILITY OF HAZARD MITIGATION GRANT PROGRAM (HMGP) FUNDS FROM FEDERAL DISASTER 1413-DR



September 19, 2002

Attention: Local Emergency Managers; State Agency Emergency Managers; Indian Tribes; Private Nonprofit Organizations; EMD/MSP District Coordinators

As a result of the Presidential Major Disaster Declaration granted May 6, 2002 for flooding that occurred in the central and western Upper Peninsula in mid-April, 2002, approximately **\$1.5 MILLION** in federal funds are being made available under the Hazard Mitigation Grant Program (HMGP) for cost-effective hazard mitigation measures. (Hazard mitigation is defined as an action intended to reduce or eliminate future damages or other negative impacts caused by natural or technological hazards.) The HMGP can be used to fund measures to protect both public and private property.

Pursuant to Executive Order 1998-5, the Michigan Hazard Mitigation Coordinating Council (MHMCC) has recommended that the HMGP funds for Federal Disaster 1413-DR be allocated in the following manner:

- A portion of available funding will be allocated to address specific issues and problems identified by Emergency Management Division / Michigan Department of State Police (EMD/MSP) staff, with a special focus on the needs of the affected counties in the declared area as identified in the Preliminary Damage Assessment (PDA) and in follow-up damage surveys.
- The remainder of the funding will be made available statewide to other eligible applicants to fund **DRAINAGE IMPROVEMENT PROJECTS**, excluding combined sewer separations, dredging, cleanouts, brush removal and other routine maintenance activities. Examples of potentially eligible drainage improvement projects include, but are not limited to:
 - UPSIZING CULVERTS TO INCREASE HYDRAULIC CAPACITY
 - BRIDGE IMPROVEMENTS TO INCREASE HYDRAULIC CAPACITY
 - CONSTRUCTION OF STORMWATER DETENTION OR RETENTION BASINS, OR DEBRIS BASINS
 - CONSTRUCTION OF STORMWATER RELIEF DRAINS
 - MEASURES DESIGNED TO IMPROVE HYDRAULIC CAPACITY AND STORMWATER FLOW IN DRAINAGE CHANNELS (SLOPE CUTBACKS / RESHAPING, BANK STABILIZATION, ETC.)
 - COMMUNITY-ADMINISTERED STORM DRAINAGE IMPROVEMENT PROGRAM (INSTALLATION OF EJECTOR PUMPS, BACKFLOW VALVES, STANDPIPES TO PREVENT DAMAGE TO HOMES FROM STORM SEWER BACKUPS)
 - ACQUISITION OR ELEVATION OF HOMES THAT ARE SEVERELY IMPACTED BY DRAINAGE CHANNEL FLOODING AND/OR THAT REDUCE THE HYDRAULIC CAPACITY AND IMPEDE THE FLOW OF STORMWATER IN A DRAINAGE CHANNEL

Federal HMPG funds are available for **UP TO 75%** of the cost of the hazard mitigation measure. Selected applicants can meet the 25% non-federal cost share requirement with cash or in-kind services. (Note: Community Development Block Grant (CDBG) funds can also be used for the 25% match.)

The HMGP is a competitive program. Typically, more applications are received than can be funded. Pursuant to Executive Order 1998-5, the MHMCC assists the EMD/MSP in reviewing, prioritizing, and selecting projects for HMGP funding consideration. Selected project applications must receive final approval from the Federal Emergency Management Agency (FEMA) BEFORE work on the project can begin.

Applicants must complete an HMGP Project Application for each project being submitted. The deadline for submitting Project Applications is **5:00 PM on FRIDAY, NOVEMBER 22, 2002**. Project Applications will be reviewed, prioritized and selected for funding consideration by the MHMCC and the EMD/MSP in early December. It is anticipated that final project selections will be completed by December 31, 2002. FEMA approval of selected projects should occur in early 2003.

The attached Project Application can be downloaded from the EMD/MSP web site (www.mspemd.org), completed electronically, and then submitted to the EMD/MSP via e-mail to housemaa@michigan.gov. The text and numeric fields will expand automatically on the electronic version of the form. Applicants can also print a hardcopy version of the form and submit it via facsimile (517/333-4987, Attn: Angela Houseman) or U.S. mail (Michigan State Police, Emergency Management Division, Attn: Angela Houseman, 4000 Collins Road, P.O. Box 30636, Lansing, MI 48909-8136).

Questions about the HMGP or this project selection process should be directed to Matt Schnepf, Acting State Hazard Mitigation Officer, at 517/336-2040, e-mail at schnepfm1@michigan.gov.

NOTE: LOCAL EMERGENCY MANAGERS ARE REQUESTED TO SHARE THIS INFORMATION WITH APPROPRIATE PRIVATE NONPROFIT ORGANIZATIONS IN THEIR COMMUNITY.

NOTICE OF AVAILABILITY OF FLOOD MITIGATION ASSISTANCE PROGRAM (FMAP) FUNDS FOR FY '03

October 23, 2002



ATTENTION: Local Emergency Managers; State Agency Emergency Managers; Michigan Indian Tribes; EMD/MSP District Coordinators; Regional Planning Commissions

Shortly, grants will become available through the Flood Mitigation Assistance Program (FMAP) to assist communities in funding cost effective measures that reduce or eliminate the long term risk of flood damage to buildings, manufactured homes and other National Flood Insurance Program (NFIP)-insurable structures. The Emergency Management Division of the Michigan State Police (EMD/MSP) is currently soliciting applications for FMAP Planning Grants and Project Grants. Actual amounts available for each grant will be released shortly. Communities interested in applying for FMAP grants must be in good standing in the NFIP. (Communities that are on probation or suspended from the program are not eligible for the grant.)

Planning Grants are available to assist communities in developing and updating flood mitigation plans. A flood mitigation plan must be completed and approved by FEMA in order for a community to receive FMAP Project Grants.

Project Grants are available to communities that have an approved flood mitigation plan. The community must be in good standing in the NFIP. Only projects that have been identified in an approved mitigation plan are eligible for an FMAP Project Grant. Projects must meet and pass benefit cost analysis and environmental review criteria and meet the cost share requirement.

Federal FMAP funds are available for **UP TO 75%** of the cost of the hazard mitigation measure. Selected applicants can meet the 25% non-federal cost share requirement with cash or in-kind services. Up to 12.5% of the overall cost may be met by in-kind contributions. The remaining 12.5% must be met by local government expenditures and cash funds identified at the time of application.

The FMAP is a competitive program. Typically, more applications are received than can be funded. Pursuant to Executive Order 1998-5, the Michigan Hazard Mitigation Coordinating Council (MHMCC) assists the EMD/MSP in reviewing, prioritizing, and selecting projects for FMAP funding consideration. Selected Project Applications must receive final approval from the Federal Emergency Management Agency (FEMA) **BEFORE** work on the project can begin.

Planning Grants

Applicants must complete an FMAP Planning Application to be considered for funding. The **deadline** for submitting Planning Applications is **5:00 PM on FRIDAY, DECEMBER 27, 2002**. Planning Applications will be reviewed, prioritized and selected for funding consideration by the MHMCC and the EMD/MSP in January 2003. It is anticipated that final project selections will be completed by January 10, 2003. FEMA approval of the selected planning project should occur shortly thereafter.

FMAP Planning Application

PDF file ([EMD-030b Flood Mitigation Assistance Program Planning Application](#)) or MS-Word Document ([EMD-030b Flood Mitigation Assistance Program Planning Application](#)) can be completed electronically, and then submitted to the EMD/MSP via e-mail to totzkek@michigan.gov. Please specify in the subject line that this is a FY '03 FMAP Planning Application. The text and numeric fields will expand automatically on the electronic version of the form. Applicants can also print a hardcopy version of the form and submit it via facsimile (517/333-4987, Attn: Karen Totzke) or U.S. mail (Michigan State Police, Emergency Management Division, Attn: Karen Totzke, 4000 Collins Road, P.O. Box 30636, Lansing, MI 48909-8136).

Project Grants

Applicants must complete an FMAP Project Grant Application to be considered for funding. The **deadline** for submitting Project Applications is **5:00 PM on FRIDAY, MARCH 14, 2003**. Project Applications will be reviewed, prioritized and selected for funding consideration by the MHMCC and the EMD/MSP in early April 2003. It is anticipated that final project selections will be completed by April 10, 2003. FEMA approval of the selected flood mitigation project should occur in 2003. (REMEMBER: COMMUNITIES APPLYING FOR A PROJECT GRANT MUST HAVE A FEMA APPROVED FLOOD MITIGATION PLAN.)

FMAP Project Application

PDF file ([EMD-013b Flood Mitigation Assistance Program Project Application](#)) or MS-Word Document ([EMD-013b Flood Mitigation Assistance Program Project Application](#)) can be completed electronically, and then submitted to the EMD/MSP via e-mail to totzkek@michigan.gov. Please specify in the subject line that this is a FY '03 FMAP Project Application. The text and numeric fields will expand automatically on the electronic version of the form. Applicants can also print a hardcopy version of the form and submit it via facsimile (517/333-4987, Attn: Karen Totzke) or U.S. mail (Michigan State Police, Emergency Management Division, Attn: Karen Totzke, 4000 Collins Road, P.O. Box 30636, Lansing, MI 48909-8136).

Additional application guidance can be found in the [Hazard Mitigation Grant Handbook \(EMD PUB-920\)](#). EMD PUB-920 is a new guidebook that consolidates all relevant grant application and management information for the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance Program (FMAP), and Pre-Disaster Mitigation Program (PDMP) into a single, comprehensive guidance document. EMD PUB-920 replaces EMD Publication 905 (Hazard Mitigation Grant Program Applicant Handbook), and EMD Publication 916 (Flood Mitigation Assistance Program Applicant Handbook).

Questions about the FMAP or this project selection process should be directed to Karen Totzke, FMAP Coordinator, at 517/336-2622, e-mail at totzkek@michigan.gov.

Disaster Assistance Employees for Federal Disaster 1346-DR-MI

Federal Disaster 1346-DR-MI (September 2000 southeastern Michigan flooding) resulted in the State of Michigan being eligible for \$33.2 million in funding under the Hazard Mitigation Grant Program (HMGP). The MHMCC Special Projects Committee met nine (9) times in May and June of 2001 to review and prioritize the 423 project proposals received from local jurisdictions, state agencies, and private non-profit organizations for this funding. The Special Projects Committee eventually selected 135 of those projects to submit to the Federal Emergency Management Agency (FEMA) for HMGP funding consideration. Due to the considerable amount of work required to complete and process the formal application for each project, the tight grant timelines involved, and the limited staffing in the EMD/MSP Mitigation Unit, FEMA agreed to provide the EMD/MSP with two full-time Disaster Assistance Employees (DAEs) to assist in grant processing activities. The DAEs were provided at 100% federal cost.

The two DAEs (Ray Cook and Gene Conley, both retired EMD/MSP employees) worked at the EMD/MSP from April 2001 to July 2002. During that time they assisted in preparing the required cost/benefit and environmental analyses for each project, established and maintained project files, and performed a variety of other tasks required to prepare and submit project applications to FEMA through the National Emergency Management Information System (NEMIS). Thanks to their assistance, the EMD/MSP Mitigation Unit was successful in submitting the projects to FEMA by the required deadline, and in allocating the entire \$33.2 million in available HMGP funding for the disaster.

The MHMCC would like to express its thanks to Ray Cook and Gene Conley for a job well done!



Projects Submitted For HMGP Funding Consideration Under Federal Disaster 1413-DR-MI

#	Applicant	County	District	Total Project Cost	Federal Share	Applicant Share	Project Type/Description
1	Allegan, City of	Allegan	5	388,988.00	291,741.00	98,247.00	Upsize culvert
2	Ann Arbor Public Schools	Washtenaw	2 South	60,000.00	45,000.00	15,000.00	Stormwater detention pond
3	Baraga County Road Commission	Baraga	8	60,000.00	45,000.00	15,000.00	Upsize culverts, construct stormwater relief drains, improve drainage, bank stabilization, replace existing culverts, construct rip rap
4	Baraga County Road Commission	Baraga	8	180,000.00	144,000.00	36,000.00	Upsize culvert
5	Baraga County Road Commission	Baraga	8	150,000.00	120,000.00	30,000.00	Upsize culvert
6	Baraga County Road Commission	Baraga	8	200,000.00	160,000.00	40,000.00	Upsize existing concrete pipes with a bridge to increase hydraulic capacity
7	Baraga County Road Commission	Baraga	8	250,000.00	200,000.00	50,000.00	Stormwater relief drains and reconstruction of road
8	Baraga County Road Commission	Baraga	8	180,000.00	144,000.00	36,000.00	Upsizing existing pipe with a bridge or culvert
9	Baraga County Road Commission	Baraga	8	50,000.00	37,500.00	12,500.00	Upsize pipe with culvert
10	Beaverton, City of	Gladwin	3	120,010.00	90,008.00	30,002.00	Bank Stabilization and Restoration
11	Big Rapids, City of	Mecosta	6	661,919.00	496,439.00	165,480.00	Culvert upgrade
12	Capac, Village of	St. Clair	2 North	200,000.00	150,000.00	50,000.00	Replace culverts and reconstruct storm water relief drains
13	Cass City, Village of	Tuscola	3	330,000.00	132,000.00	198,000.00	Relief drain
14	Charlevoix County Road Commission	Charlevoix	7	30,000.00	22,500.00	7,500.00	Culvert upgrade
15	Clinton, Charter Township of	Macomb	2 North	1,100,000.00	310,000.00	790,000.00	Footing drain disconnect project for 132 homes
16	Clinton, Charter Township of	Macomb	2 North	380,000.00	285,000.00	95,000.00	Drain improvements
17	Cranbrook Educational Community	Washtenaw	2 South	77,800.00	58,350.00	19,450.00	Improve hydraulic capacity of dam
18	East Jordan, City of	Charlevoix	7	103,925.00	77,944.00	25,981.00	Upsize culvert
19	Emmet County Road Commission	Emmet	7	77,500.00	58,125.00	19,375.00	Replace culvert w/ a bridge

#	Applicant	County	District	Total Project Cost	Federal Share	Applicant Share	Project Type/Description
20	Hartford, City of	Van Buren	5	150,000.00	112,500.00	37,500.00	Installation of storm sewer
21	Houghton City of	Houghton	8	24,425.00	18,319.00	6,106.00	Storm line re-route
22	Houghton City of	Houghton	8	11,171.00	8,378.00	2,793.00	Storm line re-route
23	Houghton County Road Commission	Houghton	8	304,000.00	228,000.00	76,000.00	Sturgeon River bank protection and caisson removal
24	Houghton County Road Commission	Houghton	8	34,000.00	25,500.00	8,500.00	Culvert upgrade
25	Houghton County Road Commission	Houghton	8	100,000.00	75,000.00	25,000.00	
26	Imlay City, City of	Lapeer	3	845,800.00	634,350.00	211,450.00	Relief storm sewer
27	Independence, Township of	Oakland	2 North	6,724.00	5,043.00	1,681.00	Remove leech basin and install a catch basin
28	Ironwood, City of	Gogebic	8	100,000.00	75,000.00	25,000.00	Insulate watertower
29	Jackson County Road Commission	Jackson	1	210,000.00	157,500.00	52,500.00	Culvert upgrade
30	Kalamazoo County Road Commission	Kalamazoo	5	154,645.00	92,787.00	61,858.00	Replace two culverts
31	Kent County Drain Commissioner	Kent	6	641,000.00	480,750.00	160,750.00	Drain improvements
32	Lac Vieux Desert Tribal Reservation	Gogebic	8	80,150.00	60,113.00	20,037.00	Construct a small extension of conduits underground
33	Little Thornapple River Intercounty Drain Board	Barry	5	223,400.00	167,550.00	55,850.00	Culvert replacement
34	Mackinac County Road Commission	Mackinac	8	216,000.00	160,000.00	56,000.00	Culvert upgrade
35	Michigan Department of Transportation	Alger	8	160,000.00	120,000.00	40,000.00	M-28 ditch stabilization
36	Michigan Department of Transportation	Ontonagon	8	119,071.00	89,303.00	29,768.00	Stormwater relief drain
37	Michigan Department of Transportation	Marquette	8	205,000.00	153,750.00	51,250.00	Culvert replacement/upgrades and grade lift
38	Michigan Department of Transportation	Keweenaw	8	100,000.00	75,000.00	25,000.00	Replace culverts with one
39	Michigan Department of Transportation	Houghton	8	324,000.00	243,000.00	81,000.00	Raise roadway and equalizing culvert

#	Applicant	County	District	Total Project Cost	Federal Share	Applicant Share	Project Type/Description
40	Michigan Technological University	Houghton	8	52,934.00	38,979.00	13,955.00	Snowmelt frequency analysis for the State of Michigan
41	Muskegon Heights, City of	Muskegon	6	104,000.00	78,000.00	26,000.00	Bridge replacement
42	Muskegon, City of	Muskegon	6	100,000.00	75,000.00	25,000.00	Install larger culvert under or bridge over abandoned RR right of way
43	Oakland County Drain Commission	Washtenaw	2 South	76,000.00	57,000.00	19,000.00	Upsizing culverts and bridge capacity
44	Paw Paw, Village of	Van Buren	5	492,275.00	369,206.00	123,069.00	Sediment removal and drain improvements
45	Reese, Village of	Tuscola	3	170,000.00	85,000.00	85,000.00	Stormwater relief drain
46	Rochester Hills, City of	Oakland	2 North	143,900.00	107,925.00	35,975.00	Relief drain
47	Royal Oak, City of	Oakland	2 North	260,000.00	195,000.00	65,000.00	Stormwater relief drain
48	Royal Oak, City of	Oakland	2 North	23,000.00	17,250.00	5,750.00	Warning siren
49	Saginaw County Public Works Commissioner	Saginaw	3	122,980.00	92,235.00	30,745.00	Stormwater relief drain
50	South Lyon Drain No. 1 Drainage District	Oakland	2 North	240,000.00	180,000.00	60,000.00	Creation of a stormwater detention area
51	St. Clair County Drain Commissioner	St. Clair	2 North	871,250.00	261,375.00	609,875.00	Drain improvements
52	St. Clair County Road Commission	St. Clair	2 North	141,042.00	105,782.00	35,261.00	Upgrade stormsewer
53	St. Clair International Airport	St. Clair	2 North	478,000.00	358,500.00	119,500.00	Detention pond and storm water pollution prevention plan
54	Tawas City	Iosco	3	139,880.00	104,910.00	34,970.00	Storm drain improvements
55	Tawas City, City of	Iosco	3	230,808.00	173,106.00	57,702.00	Storm drain improvements
56	Tawas City, City of	Iosco	3	188,110.00	141,083.00	47,027.00	Storm drain improvements
57	Tawas City, City of	Iosco	3	139,880.00	104,910.00	34,970.00	Storm drain improvements
58	Wexford Road Commission	Wexford	7	195,500.00	146,625.00	48,875.00	Bridge upgrade
	TOTAL			12,779,087.00	8,541,336.00	4,239,252.00	

Mitigation Success Stories: Project Impact Communities



1998 – City of Midland

In 1998, the City of Midland became Michigan's first Project Impact Community. Midland kicked off its Project Impact initiative on May 18, 1999 with a luncheon at the Riverside Place Senior Housing Facility. Luncheon speakers included Captain Edward Buikema of the Michigan State Police Emergency Management Division (EMD/MSP), Mayor R. Drummond Black, and Planning Director Jim Schroeder. In September 1999, Midland held its Project Impact Signing Ceremony at the Midland City Hall. Over 50 individuals representing local businesses and volunteer organizations, the Federal Emergency Management Agency (FEMA), the EMD/MSP, and the Michigan Department of Environmental Quality Land and Water Management Division (MDEQ/LWMD) attended the ceremony. Mayor R. Drummond Black, Roger Garner (Midland County Emergency Services Coordinator), and Jim Schroeder spoke on behalf of the city. Dale Shipley, Director of FEMA Region V, and Captain Edward Buikema of the EMD/MSP both congratulated the City of Midland for its participation in Project Impact and in making the commitment to become a disaster resistant community.

The City of Midland identified a variety of projects to implement under Project Impact. Those projects included inspecting and cleaning drains, providing community outreach, installing additional emergency warning sirens, providing an information telephone line for individuals during large disasters, conducting public information campaigns to minimize the effects of hazardous events, and providing ongoing planning to refine and improve planned response to natural and technological hazards. The city's primary Project Impact project involved cleaning the open drains in the Snake Creek Basin. The Snake Creek Basin was divided into eight sections to allow city staff to meet with residents of each section prior to the removal of brush and trees in the drain area. They were able to accomplish 70 % of the brush and tree removal program with the support of the adjacent property owners. In the final 30 % of the project, neighborhood concerns and the city's commitment to not proceed with the work until these concerns were dealt with individually delayed the project. The resident's concerns focused on the type of equipment to be used in the project and not the project itself. The contractor proposed using large mechanical equipment because it is cost effective and safe to use in removal of trees and brush along the drain way. However, the residents along the drain disagreed with this approach. City staff proposed that the remaining areas be inventoried to determine if smaller equipment or handwork could be substituted to address the concerns. Those concerns were ultimately addressed in a satisfactory manner and the project was completed in March 2001.

The city closed out its Project Impact grant in the summer of 2001. Midland's many successful Project Impact projects will help ensure that it remains a disaster resistant community for years to come.

1999 – Ottawa County

In 1999, Ottawa County was selected as Michigan's second Project Impact Community. On December 12, 2000 Ottawa County celebrated its commitment to Project Impact by holding a Kickoff / Signing Ceremony at the County Administration Building. Over 50 individuals were in attendance representing local communities and businesses, county departments, volunteer organizations, and the EMD/MSP 6th District Office. Due to a severe winter storm, representatives from FEMA Region V in Chicago and the EMD/MSP in Lansing were not able to attend the ceremony. The representatives who attended the ceremony signed a Memorandum of Understanding pledging their support in making Ottawa County more disaster resistant. (Partners that were not able to make the ceremony due to the inclement weather signed the Memorandum of Understanding at a later date.) Representatives of several local Project Impact partner agencies spoke at the ceremony about the importance of Project Impact to Ottawa County and how the county might use the available funding to become more disaster resistant.

Ottawa County opted to use its Project Impact funds to implement a wide variety of projects designed to inform county residents about the hazards they face, and to address identified hazard-related problems. Those projects included the development of a countywide hazard analysis and hazard mitigation plan, partnering with WOOD TV8 for

public service announcements on specific weather related topics, and installing “dry” fire hydrants in needed locations across the county. (“Dry” fire hydrants consist of an L-shaped PVC line that taps a pond or stream at one end and holds a connection for pumping water into a tanker truck at the above ground end. They are an inexpensive, easily constructed, and highly effective means to tap into remote water supplies for firefighting.) The county also developed a two-page information sheet on Project Impact and emergency preparedness that was published in the 2001 Ameritech telephone book for Ottawa County.

Ottawa County closed out its Project Impact grant in April 2002. Ottawa County’s innovative Project Impact projects, coupled with the many successful public-private partnerships formed throughout the four-year initiative, will continue to provide positive benefits for the county’s residents, business community, and governmental agencies well into the future.

2000 – City of Dearborn

In 2000, the City of Dearborn was chosen as Michigan’s third Project Impact Community and became the first PI community chosen by the Michigan Hazard Mitigation Coordinating Council. The city held its Project Impact Kickoff Ceremony on July 24, 2000 at the Henry Ford Museum in Dearborn. Attendees included department directors, city council members, community leaders, and potential public and private sector partners. Mayor Michael Guido addressed the 220+ persons in attendance on why Project Impact was important to the city. Michelle Burkett, a native of the city and representing FEMA Headquarters, spoke about the importance of Project Impact from FEMA’s perspective, while Mayor Susan Savage from Tulsa, Oklahoma spoke on her experience with Project Impact and how it has benefited the residents of Tulsa. At the conclusion of the Kickoff ceremony, invited guests had an opportunity to browse around Henry Ford Museum after public visiting hours.

On April 27, 2001 the city held its Project Impact Signing Ceremony in front of City Hall in downtown Dearborn. Over 40 individuals representing local businesses, FEMA, the EMD/MSP, and various other local, state and federal government agencies were on hand to support the city’s efforts to become more disaster resistant. Keynote speakers included Mayor Michael A. Guido, U.S. Representative John Dingell, Michigan Senator George Hart, FEMA Region V Director Edward Buikema, Norbert Schwartz of FEMA Region V, and Peter Locke, Dearborn’s Emergency Manager.

Dearborn established a Project Impact Steering Committee (consisting of community members and city personnel) to identify potential projects for implementation under Project Impact. One of the major projects proposed by the committee was to design and build a “safety town” model cityscape where children could be informed about traffic safety and adults could learn about ways to “disaster-proof” their homes and businesses. (Unfortunately, due to time constraints and other unforeseen circumstances, the project was shelved for implementation at a later time.) The committee also proposed developing a citizen’s handbook on the principal hazards and threats faced by the city, developing a detailed community hazard analysis, and creating two web sites focusing on disaster public education titled “Preparing Your Home / Business for a Disaster” and “Preparing for a Disaster.” (The two web sites can be accessed at www.cityofdearborn.org.)

The City is currently finishing up their work under the Project Impact grant and should be closed out in early 2003.

2001 – Ingham County

Ingham County was selected as Michigan’s fourth and final Project Impact Community in September 2001. On February 28, 2002 the County held its Kickoff Ceremony at the Mason Public Services Building in Okemos. At that meeting, potential Project Impact partners were on hand to learn about the Project Impact initiative and to pledge their support to the effort.

The Ingham County Local Emergency Planning Committee (LEPC), which is overseeing the Project Impact initiative for the county, created a Project Impact Steering Committee to research all potential projects and to develop budgets for the initiative. The Project Impact Steering Committee, which has 10 active members from county agencies, community organizations and the private sector, meets on a monthly basis. The Steering Committee has spent the past year developing projects for funding under Project Impact. Proposed projects include developing a hazard analysis, risk assessment and mitigation plan, developing a system of “dry” fire hydrants, installing pumps to alleviate flooding in a residential area, distributing “Masters of Disaster” curriculum kits in area elementary schools, running disaster related public service announcements with FOX47, conducting Skywarn training for weather spotters, providing emergency kits in all new Habitat for Humanity homes, providing weather alert radios for county schools, and developing a “FIREWISE” model community project. (Note: The FIREWISE project will be implemented in two phases. Under Phase I, the FIREWISE program and concept will be introduced to the community, and wildland fire assessments will be conducted. Phase II will involve implementation of actual fire mitigation projects based on the wildland fire assessments.)

The Ingham County Board of Commissioners presided over the Project Impact Signing Ceremony held at the Ingham County Courthouse in Mason on July 8, 2002. Speakers included the Ingham County Sheriff and members of the county board of commissioners, as well as representatives from FEMA Region V and the EMD/MSP.

The county is currently developing a full program description and budget for Project Impact, which will be presented to the county board of commissioners and controller’s office for final approval in the summer of 2003. Ingham County’s Project Impact efforts are well underway and should provide a solid foundation for an ongoing program to make the county a more disaster resistant community!

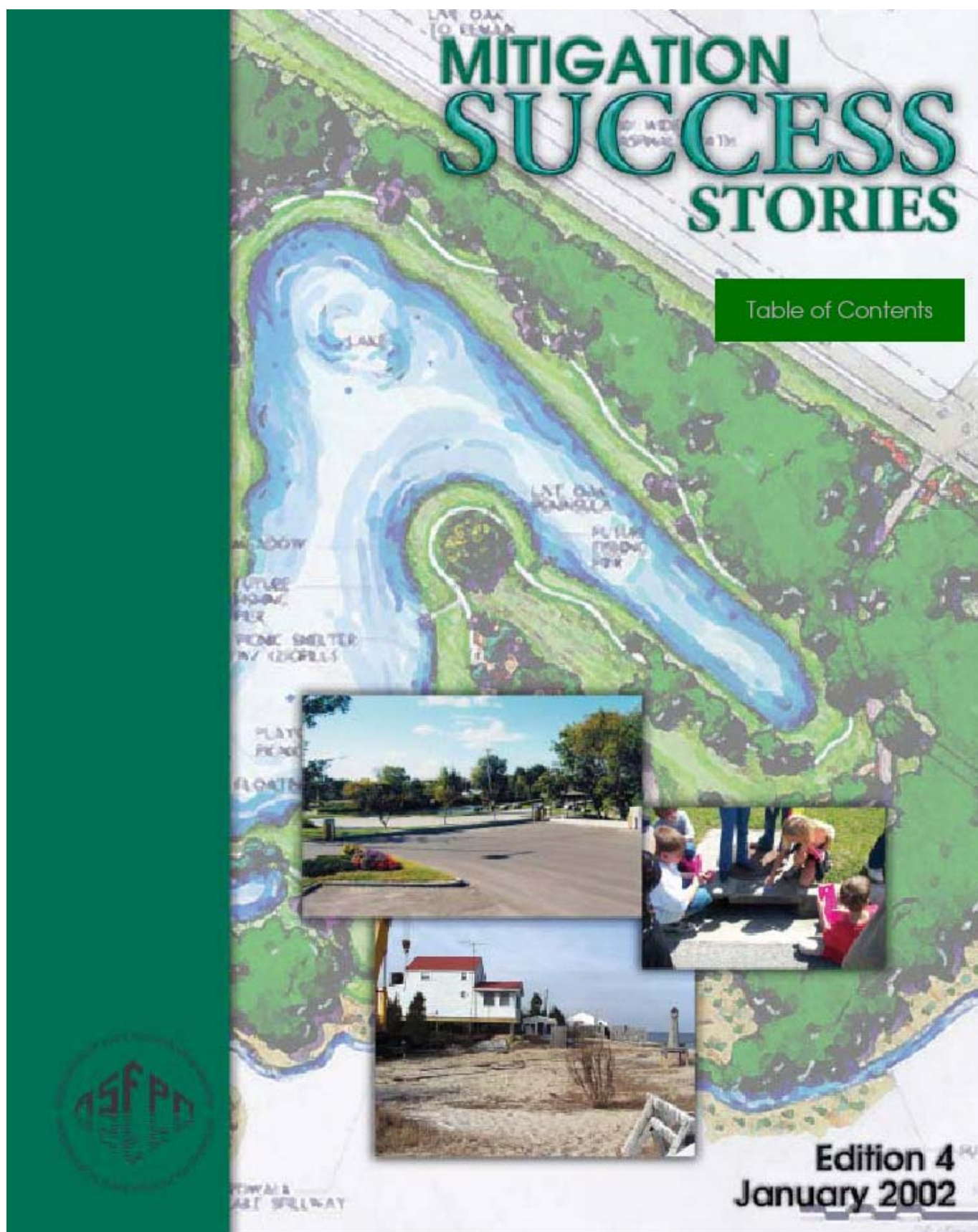
Mitigation Success Stories: “Storm Rooms” at Michigan State University

“Storm Rooms” (also commonly known as “Safe Rooms”) are increasingly recognized as an inexpensive and highly effective means of providing protection against tornadoes and other severe wind events in facilities that do not have basements or other adequate shelter. Storm Rooms are generally constructed of properly anchored, reinforced concrete or masonry with steel doors and reinforced steel door frames, although other combinations of materials and construction methods can also provide an acceptable level of protection. Storm Rooms are designed to withstand the direct wind forces, fluctuating wind pressures and flying debris caused by a tornado or severe windstorm, enabling the occupants to survive with little or no injury.

In October 2000, the EMD/MSP and Michigan State University (MSU) began a partnership that would ultimately result in MSU constructing eight (8) Storm Rooms in a new child care facility in the Spartan Village housing complex on the west side of the MSU campus. The child care facility, completed in October 2002, is a one-story wood frame structure of residential character built on a concrete slab. Using Hazard Mitigation Grant Program (HMGP) funds from Federal Disaster 1346-DR-MI, MSU opted to construct the Storm Rooms as a vestibule between the main corridor and each classroom, thereby assuring close proximity to the shelters at all times. The Storm Room space contains children’s lockers with a bench in front of each locker for the child to sit and remove boots or shoes. Each Storm Room provides enough space to accommodate 20-25 children and adults, and has an emergency kit and emergency lighting and ventilation in case of a power failure. The Storm Rooms are designed to resist wind speeds in excess of 250 miles per hour.

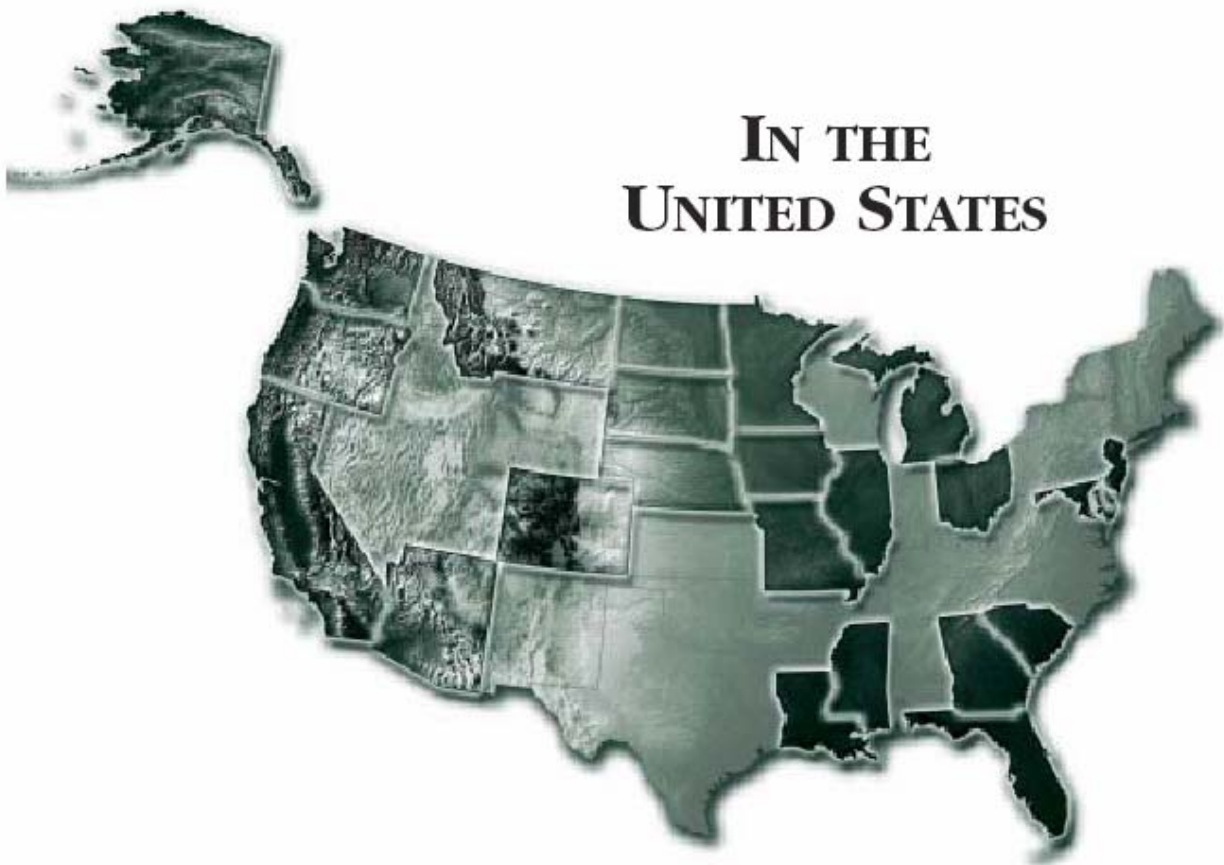
The total cost of the eight Storm Rooms was \$165,000, which represented 7.4% of the total building cost. The cost of each individual Storm Room was \$20,625. This project was very successful and will serve as a demonstration model for future Storm Room projects in Michigan and elsewhere. The photos below show the Storm Rooms during construction and as they appear today in their completed form.





MITIGATION **SUCCESS** STORIES

IN THE
UNITED STATES



Edition 4 • January , 2002

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MITIGATION **SUCCESS** STORIES

IN THE
UNITED STATES



Location: Spaulding Township, Michigan

Project: Flint River Flood Control Project

Techniques: Earthen Dike Relocation, Excavation of Floodway Shelf, Stabilization of Overflow Channels, Excavation of Overflow Channel

Contact: Dawn Schuler, Michigan Department of State Police, Emergency Management Division, SchulerD@michigan.gov or 517-333-5040

MICHIGAN

Spaulding Township, Michigan

Background

The Flint River and its connecting drainage systems, covering the counties of Genesee, Shiawassee, Lapeer, Sanilac, Tuscola, Oakland and Saginaw, have been drastically changed in the last 30 years. These modifications are man-made and not natural. The growth and development of the upstream drainage basin has radically increased the flow of water into the Flint River channel and has compounded the speed at which water and storm sewers dump into this drainage network. This increases both the frequency and the intensity of flooding in southern Saginaw County.

While the upstream community has changed rapidly, rural areas and agricultural areas downstream, toward Saginaw County, have not changed fast enough to cope with the increased volume of drainage water. There are farms that have been owned by the same family for more than 100 years ("Centennial farms") in the area that had never lost a harvest to flooding until the 1980's. In 1985, after approximately 10,000 acres were inundated for over two weeks, Governor Blanchard ordered the National Guard to repair area dikes because of the potential health hazards.

The flood control problem became obvious due to the frequent and devastating flooding to the community. The extensive economic losses, health and safety risks were unbearable. Residents had to evacuate homes, suffered household damage and lost income due to missed work. Financial losses to farmers in 1985 alone totaled \$1,600,000. In 1986, losses of crops totaled an additional \$2,805,760. An additional consequence of flooding is the millions of gallons of raw sewage released and by-passed into the Flint River from upstream wastewater treatment plants during flooding and high flow conditions.

The flood control problem became obvious due to the frequent and devastating flooding to the community. The extensive economic losses, health and safety risks were unbearable. Residents had to evacuate homes, suffered household damage and lost income due to missed work. Financial losses to farmers in 1985 alone totaled \$1,600,000. In 1986, losses of crops totaled an additional \$2,805,760. An additional consequence of flooding is the millions of gallons of raw sewage released and by-passed into the Flint River from upstream wastewater treatment plants during flooding and high flow conditions.



Reconstruction and setback of the existing dike will reduce or eliminate future damages for at least 100 homes and prime farmland in the area.

Communities and farmers south of Saginaw and downstream from Flint, in order to protect their land and homes, have formed a four-township Flood and Erosion Control board to institute flood protection for the area.

Project Description

The Flint River Flood Control Project encompasses 8 miles of river, 11,145 acres of prime agricultural land, 340 homes and 16 miles of riverbank. Specific project activities include:

- ◆ Relocation of existing earthen dikes and excavation of a floodway shelf along the Flint River involving about 410,000 cubic yards of material. The excavated material will be used for the construction of about 46,500 lineal feet of proposed dikes.
- ◆ Stabilization, with rip-rap underlain by filter fabric, of both the upstream and downstream ends of two existing overflow channels.
- ◆ Excavation of an overflow channel about 1,150 feet in length and stabilization of both upstream and downstream ends with rip-rap underlain by filter fabric.

Benefits

- ◆ A conservative estimate of damages that have occurred over the past century is \$100 million. To date, \$2.8 million has been spent on flood improvements. An additional \$2.26 million is required to complete the project. The ratio of \$100 million in damages to \$5.06 million in total project costs is nearly 20:1.
- ◆ Without mitigation improvements, the average annual damage to dikes, crops, homes, roads, bridges and other property is estimated at \$2.8 million.
- ◆ On an investment of \$141,820, damages of \$2,836,400 were avoided. On February 8, 2001, a major storm event occurred during frozen ground conditions. This event was recorded as the third highest flow event since 1948. With the improvements in place, damages in the amount of \$2,836,400 were avoided. This is 20 times the project cost of \$141,820.
- ◆ Reconstruction of the dikes will protect 340 homes, at least 6 commercial businesses and 72 business landowners with crop-producing farm land.
- ◆ Completion of the dikes will prevent contamination to households, wells, crops, soils and restore both safety and productivity to the community.

Project Cost and Funding Sources

Total Project Costs = \$5.06 million (To date, \$2.8 million has been spent on flood improvements and an additional \$2.26 million is required to complete the project.)

FEMA HMGP funds from Disaster #1128 were utilized to accomplish the activities listed above. Additional funding was provided by a Michigan Department of Commerce Block Grant, Michigan Department of Agriculture, Natural Resource Conservation Service and Spaulding Township Assessments.

MICHIGAN

Vassar, Michigan

Location: Vassar, Michigan

Project: Elevations

Techniques: Elevation

Contact: Wallace Wilson, W.A. Wilson Consulting Services,
wilsonconsulting@worldnet.att.net or
517-655-1828

Background

The City of Vassar, located along the Cass River in the "Thumb" area of Michigan, has long suffered from flooding. Since 1904, there have been approximately 28 floods of significance, including the 1986 flood exceeding the "1% chance flood"* event. The Cass River drains approximately 710 square miles through a relatively flat watershed. Most of its area is in agricultural use with a few cities and villages. Vassar, by far, has been the most adversely effected over the years. Floods of significance inundate the downtown business district and many residences to depths of six feet or more.

Since 1986, strong efforts have been put forth to relocate or acquire floodprone homes. Section 1362 funds from the NFIP and from CDBG grants from the state allowed nine residential properties to be purchased and removed from the floodplain. Subsequently seven additional structures were removed from the floodplain. No further mitigation actions occurred until September 1998, due to the lack of funding.

A Flood Mitigation Plan was developed in 1998 for the City using funding from FEMA's HMGP in the amount of slightly more than \$30,000. This plan was adopted by the City Council and identified 32 separate actions that could be taken to reduce flood damages in Vassar. The Plan included a structure inventory that identified 130 structures within the City as being prone to flooding. They included 91 residential, 7 multi-family and 32 commercial buildings. The inventory also identified such information as flood elevation, lowest opening elevation, first floor elevation, lowest adjacent ground grade and whether or not the building was located within the floodway.

The City Council and the City Manager were concerned with the shrinking population of Vassar as homes were acquired and either demolished or relocated out of the city limits. Virtually all quality building sites are occupied with little room for the City to expand and grow. As buildings were demolished, the occupants relocated to the surrounding township lands or out of the area. When new funds became available through FEMA's FMA Program or FEMA's HMGP, the City Council decided it was time to approach flooding from a different perspective; floodproofing through elevation instead of acquisition and demolition.

Project Description

Four homes, all with flood insurance and all outside of the floodway, were identified as potential candidates for elevation. The City Manager and the City's consulting engineer sat down individually with each of the homeowners to discuss the program. The homeowners, while having some reservations, all joined into the program with the anticipation of not having to live through the recurring flood nightmares again. The four houses are all older, having been built in about 1910 or 1920, with wood frame construction and basements. One home had brick facing. Two homeowners opted to convert to a crawl space under the house as opposed to an elevated basement. During the elevation project, all sub-grade basements were filled, new footings and foundation walls laid and the houses reset on the new extended concrete block foundation walls.

- ◆ House #1 was elevated 4.9 feet with a crawl space and 9 hydrostatic vent relief openings installed at a foot or less from the ground grade.
- ◆ House #2 was elevated 8.2 feet with the lower portion of the building now being used for incidental storage and access to the upper floors. It has 10 vent openings installed.
- ◆ House #3 was elevated 7.9 feet with the lower portion now being used for parking, incidental storage and access to the upper level. There are 10 vents installed.
- ◆ House #4 was elevated 4.2 feet with the lower portion converted to a crawl space. There are 12 hydrostatic vent openings installed.

Of critical importance to the elevation project was the coordination required at all stages of the project. Initial and continuing contacts with the homeowners were vital. Then permits and approvals were needed from the Michigan Department of Environmental Quality's Land and Water Management Division for modifications to the floodplain. The Emergency Management Division of the Michigan Department of



House #3 prior to elevation.



House #3 elevated 7.9 feet with the garage under the house.

MICHIGAN

State Police served as FEMA's representative, providing project oversight and fund allocation. Very critical to the project was continuing coordination with the Tuscola County Building Inspector, ensuring that building permits were in-hand and that all aspects of the building code were met. Finally, the Vassar City Council was kept fully informed of the project's progress by the City Manager. Several decisions at the Council level helped keep the project moving forward.

Problems Encountered

Because the elevation projects were a new "venture" for the City, the City Council and City Manager received many vocal opinions. Many believe that the houses look funny elevated and others thought the process took far too long. House #2 stands out as the most obvious elevation. The homeowner plans to use new siding that will cover the extended foundation walls, improving the appearance significantly. The other elevated homes all had fill placed around their perimeters, making them look like homes built on small hills.

The length of time that it took to elevate the structures was due primarily to the contractor's inability to schedule and communicate properly with all parties. This led to high levels of angst with everyone. Future projects will be done with a better qualified contractor.

Benefits

- ◆ Four homes are no longer prone to flood damage from the "1% chance flood"* event.
- ◆ The homeowners are satisfied because their flood insurance rates will drop.
- ◆ NFIP claims will be reduced.

Costs and Funding Sources

The federal portion of the elevation project came from FEMA FMA Program, passed through the Michigan Department of State Police, Emergency Services Division. The City of Vassar paid for 12.5% of the elevation costs and each of the homeowners paid the remaining 12.5%.

Total project cost = \$199,980

House #1 total cost = \$49,140

- ◆ FEMA FMA Program grant = \$41,600
- ◆ City of Vassar = \$3,770
- ◆ Homeowner = \$3,770

House #2 total cost = \$543,920

- ◆ FEMA FMA Program grant = \$36,500
- ◆ City of Vassar = \$3,710
- ◆ Homeowner = \$3,710

House #3 total cost = \$52,200

- ◆ FEMA FMA Program grant = \$45,100
- ◆ City of Vassar = \$3,550
- ◆ Homeowner = \$3,550

House #4 total cost = \$54,720

- ◆ FEMA FMA Program grant = \$47,200
- ◆ City of Vassar = \$3,760
- ◆ Homeowner = \$3,760

Note

* "1% chance" = a flood event that has a 1% chance of occurring or being exceeded in any given year. This is a replacement term for the "100 year flood".

Mitigation Success Stories: Gratiot County Road Commission

A recent success story from Federal Disaster 1346-DR-MI is the completion of HMGP project A1346.77 for the Gratiot County Road Commission. Just prior to the application and project selection period for 1346-DR-MI, the Gratiot County Road Commission discovered a threatening situation with potential catastrophic impacts. One of two culverts in a twin culvert system on Otter Creek had buckled and the undersized system was doomed to imminent failure. Failure of the system would result in the washing of 3,800 cubic feet of road fill into Rainbow Lake and the collapse of two sewer mains (serving 420 hookups including residential structures, schools, and an adult foster care facility) that would dump into the creek and Rainbow Lake.

The Gratiot County Road Commission applied for a project to replace the twin culvert system with a single span concrete box culvert. The MHMCC selected the Gratiot County project and asked FEMA to make it a priority project in the approval process. The EMD/MSP Mitigation Unit worked with FEMA and Congressman Dave Camp's office to keep the project moving forward in a timely manner. FEMA gave final approval for the grant in March 2002. The pictures below represent the buckled culvert and the completed project:



Michigan Hazard Analysis: Summary of Hazard Impacts*
(December 2001 Edition)

HAZARD	Historical Frequency of Major Events (Approximation)	Deaths from Major Events	Injuries from Major Events	Property Damage from Major Events (Best Available Estimates)	Typical Impact Area	Risk Rating - Human Life	Risk Rating - Property Damage
Civil Disturbances	1 major disturbance app. every decade; 1 major prison uprising every 20-25 years	34 (1943); 43 (1967); prison = 1 (1952)	700+ (1943); 1,000+ (1967); prison = 189 (1952, 1981)	\$50 million+ (1967); prison = \$11.6 million	Local	Low - Moderate	Moderate
Drought	1 major event every 20-25 years	N/A	N/A	N/A	Regional - Statewide	Low	Low (Agricultural = High)
Earthquakes	Michigan has not had a major earthquake to date	N/A	N/A	N/A	Local - Regional	Low	Low
Energy Emergencies	Major short-term local or regional disruptions caused by weather, accidents or equipment failure: app. 1-3 per year; longer-term regional or national disruptions caused by a sudden price increase or other factor: 1999/2000, 1979/80, 1976/77, 1973/74 – app. 1 event every decade since 1970	N/A	N/A	N/A	Regional - Statewide	Low – Moderate (depending on length of emergency and the time of year)	Low
Extreme Temperatures	Extreme temperature periods occur every year; Michigan has 90-180+ days per year below freezing	570 (1936); (nationally, 200 deaths per year from extreme heat; 700 deaths per year from extreme cold)	N/A	N/A	Regional - Statewide	Moderate - High	Low (Agricultural = Low-Moderate)
Fire Hazards:							
Scrap Tire Fires	Varies; from 1987-97, 6 major events	None	None	N/A (however, suppression time/costs are significant)	Local	Low	Low
Structural Fires	22,000 fires in 1998 (1 fire every 27.5 minutes); catastrophic structural fires in 1927, 1934, 1951	213 in 1998; (nationally, 5,000 per year); catastrophic structural fire losses: 21 (1927) 34 (1934)	669 in 1998; nationally, 25,000 per year	\$400 million in 1998; nationally, \$9 billion per year	Local	High	High
Wildfires	MDNR involvement = 1 major event app. every decade	500+/- (since 1871)	N/A	N/A	Local	Low - Moderate	Moderate - High (Very High for timber loss)

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(December 2001 Edition)

HAZARD	Historical Frequency of Major Events (Approximation)	Deaths from Major Events	Injuries from Major Events	Property Damage from Major Events (Best Available Estimates)	Typical Impact Area	Risk Rating - Human Life	Risk Rating - Property Damage
Flooding Hazards:							
Dam Failures	278 failures documented (none catastrophic); 2,400 dams identified statewide	N/A	N/A	N/A	Local - Regional	Moderate - High	Moderate - High
Riverine Flooding	1 major flood every 2 years	Less than 10 over the past 25 years; nationally, 140 per year	N/A	\$60-100 million per year for all flooding; \$475 million in major riverine events since 1975	Local - Regional	Low	High
Great Lakes Flooding	1 major flooding cycle app. every decade; (10% of Michigan's shoreline is floodprone – in 30 counties = 45,000+acres)	N/A	N/A	\$60-100 million per year for all flooding	Local - Regional	Low	High
Hazardous Material Fixed Site Incident (including major hazardous material-related industrial accidents)	1 reportable incident every 15.2 days	Industrial accidents: 21 (1927) 18 (1999 – 3 events) 5 (2000 – 1 event)	Industrial accidents: 14 (1999 – 1 event) 32 (2000 – 1 event) 16 (2001 – 2 events @ same plant)	Industrial accidents: \$1 billion+ (1999 – 1 event); Hazardous Material Fixed Site Incidents: (minimal except in cases of explosion)	Local	Low - Moderate (for surrounding areas); higher for on-site personnel	Low (for <u>most</u> incidents); Moderate-High (in cases of large industrial explosions)
Hazardous Material Transportation Incident	1 reportable incident every 9.1 days	N/A	N/A	N/A	Local	Low - Moderate (for surrounding areas); may be higher for operator and responders	Low
Infrastructure Failures	Varies greatly by type of facility; some occur almost annually (i.e., major power failures)	N/A	N/A	\$250 million in recent Federally-declared disasters (1028, 1128, 1346)	Local - Regional	Low	Low - High (depends on type of failure)
Nuclear Attack	Never occurred in United States; only once worldwide (Japan, 1945)	None	None	None	Statewide	Very High	Very High
Nuclear Power Plant Accidents	One in United States (TMI, 1979); major accident in USSR (Chernobyl, 1986)	None	None	None	Local - Regional	Moderate - High (long-term effects from radiation exposure)	Low

Michigan Hazard Analysis: Summary of Hazard Impacts*

(December 2001 Edition)

HAZARD	Historical Frequency of Major Events (Approximation)	Deaths from Major Events	Injuries from Major Events	Property Damage from Major Events (Best Available Estimates)	Typical Impact Area	Risk Rating - Human Life	Risk Rating - Property Damage
Oil/Gas Well Accidents	1 major accident every 3-4 years (since 1973)	Minimal – 1 from recent major accident	Minimal - 2 from recent major accidents	N/A	Local	Low - Moderate (for surrounding areas); may be higher for operator and responders	Low
Petroleum/Gas Pipeline Accidents	1 major accident per decade; minor accidents much more frequent (several per year)	10 since 1975 (figure would be higher if all minor accidents were accounted for)	34 since 1975 (figure would be higher if all minor accidents were accounted for)	N/A	Local	Low - Moderate (for surrounding areas); may be higher for operator and responders	Low (for public and private property); higher for pipeline company property
Public Health Emergencies	Varies greatly by type of emergency; 4 major incidents since 1973	N/A (21 nationwide from the 1998-99 Listeriosis outbreak originating in Michigan)	327 from 3 of the major incidents since 1973; (long-term effects of PBB contamination are unknown); (100 nationwide from the 1998-99 Listeriosis outbreak)	N/A	Local - Statewide	Low - High (varies by type of emergency)	Low
Sabotage/Terrorism	4 major incidents in Michigan's history (Bath, 1927; Pontiac, 1971; East Lansing, 1992 and 1999); nationally, numerous incidents in recent years	In Michigan, 41; (nationally, 4,600+ in major incidents since 1970; if all incidents were accounted for, the figure would be higher)	In Michigan, 58; nationally, nearly 11,000 in major incidents since 1970; (if <u>all</u> incidents were accounted for, the figure would be higher)	N/A (several billion, just from major incidents)	Local - Regional	High, in impacted area (randomness of targets and actions makes it difficult to establish a definitive risk rating); High, if deadly agents are used	High, if explosives are used in the attack
Subsidence	Major incidents that lead to catastrophic damage are rare in Michigan; smaller incidents occur with regularity in old mining areas	None	None	Nationally, \$125 million per year	Local (single sites, typically)	Low (due to limited nature of impact area)	Low - Moderate (due to limited nature of impact area)
Thunderstorm Hazards:	20-60 thunderstorm days per year in Michigan; 40-60 days per year in the southern two tiers of counties of the Lower Peninsula; 30-40 days per year, in general, in the Lower Peninsula; 20-30 days per year in the Upper Peninsula.						

Michigan Hazard Analysis: Summary of Hazard Impacts*
(December 2001 Edition)

HAZARD	Historical Frequency of Major Events (Approximation)	Deaths from Major Events	Injuries from Major Events	Property Damage from Major Events (Best Available Estimates)	Typical Impact Area	Risk Rating - Human Life	Risk Rating - Property Damage
Hail	20-60 thunderstorm days per year; 1 major hail event app. every 2-3 years	Difficult to determine due to other thunderstorm impacts that may contribute to deaths	Difficult to determine due to other thunderstorm impacts that may contribute to injuries	NCDC records list \$27.9 million in property and crop damage from hail since 1993 – an average of \$3.1 million per year; (Note: these figures are conservative; the actual totals are likely to be higher)	Local - Regional	Low (for just hail alone)	Moderate - High
Lightning	20-60 thunderstorm days per year	99 (1959-July 2001); app. 2.3 deaths per year from lightning	693 (1959-July 2001); app. 16.1 injuries per year from lightning	Nationally, several billion dollars per year; NCDC records list \$17.7 million in damage since 1993 alone – an average of \$2 million per year; (Note: these figures are conservative; the actual totals are likely to be higher)	Local - Regional	Moderate - High	High
Severe Winds	On average, severe wind events can be expected 2-3 times per year in the Upper Peninsula, 3-4 times per year in the northern Lower Peninsula, and 5-7 times per year in the southern Lower Peninsula.	115 (1970-July 2001); app. 3.6 deaths per year from severe winds	660+ in major wind events since 1970; app. 20.5 injuries per year from severe winds	\$260+ million in public and private damage from <u>major</u> wind events since 1980; NCDC records list \$285+ million in property and crop damage from severe winds since 1993 alone – an average of \$31.7 million per year; (Note: these figures are conservative; the actual totals are likely to be higher)	Local - Regional	Moderate	Moderate - High
Tornadoes	927 from 1950-July 2001 (an average of 18 per year)	239 (1950-July 2001); app. 5 deaths per year from tornadoes	3,332 (1950-July 2001); app. 64 injuries per year from tornadoes	Nearly \$700 million since 1950 – an average of \$13.5 million per year (Note: these figures are conservative; the actual totals are likely to be higher)	Local	High	High

Michigan Hazard Analysis: Summary of Hazard Impacts*

(December 2001 Edition)

HAZARD	Historical Frequency of Major Events (Approximation)	Deaths from Major Events	Injuries from Major Events	Property Damage from Major Events (Best Available Estimates)	Typical Impact Area	Risk Rating - Human Life	Risk Rating - Property Damage
Transportation Accidents (Passenger)	5 major air transport crashes since 1958; 1 major passenger train accident (1993); 5 major land transport accidents (1999-2001); no major water transport accidents	250 from major air transport crashes since 1958; 1 from a school bus accident in 2000; none from other major transport accidents	22 from major air transport crashes since 1958; 2 from the 1993 passenger train accident; 116 from the 1999-2001 land transport accidents	N/A	Local	Low (when compared to automobile travel)	Low
Severe Winter Weather:	90-180 days per year below freezing in the Lower Peninsula; 180+ days in the central and western Upper Peninsula						
Ice/Sleet Storms	40 major storm events from 1970-July 2001 (an average of just over 1 major storm event per year)	N/A (Difficult to determine because many deaths are caused by automobile accidents, heart attacks from overexertion, downed power lines, and other secondary impacts)	N/A	Over \$100 million in damage from major storms since 1976; NCDC records list \$35.8 million in damage since 1993 alone – an average of \$4 million per year; (Note: these figures are conservative; the actual totals are likely to be higher)	Local - Regional	Low from direct storm impacts (Note: factoring in traffic accidents, heart attacks and other secondary impacts would increase the rating to Moderate)	Moderate - High
Snowstorms	8 major regional or statewide snowstorms since 1967 – an average of 1 major snowstorm app. every 5 years; (Note: numerous snowstorms that occur in the Upper Peninsula and northern Lower Peninsula on a regular basis would likely be considered major snowstorms in the southern Lower Peninsula, where average annual snowfall totals are much lower and the affected population is much higher)	N/A (Difficult to determine because many deaths are caused by automobile accidents, heart attacks from overexertion, and other secondary impacts)	N/A	N/A	Local - Statewide	Low from direct storm impacts (Note: factoring in traffic accidents, heart attacks and other secondary impacts would increase the rating to Moderate)	Low

MICHIGAN HAZARD ANALYSIS

2001 Hazards Rankings*

Most Frequent Major Events

Hazard	Frequency	Comments
Structural Fires	1 structural fire every 27.5 minutes.	Most are single structure events only.
Ice/Sleet Storms	1 major storm event approximately every year.	Occur primarily in January, February, March and April.
Severe Winds	On average, severe wind events can be expected 2-3 times per year in the Upper Peninsula; 3-4 times per year in the northern Lower Peninsula; 5-7 times per year in the southern Lower Peninsula.	Includes winds of 58+ miles per hour from thunderstorms, blizzards, etc., but <u>not</u> tornadoes.
Hazardous Material Transportation Incident	1 reportable incident every 9.1 days.	Most do not result in significant evacuations, property damage, etc.
Hazardous Material Fixed Site Incident	1 reportable incident every 15.2 days.	Most do not result in significant evacuations, property damage, etc.
Thunderstorms	20-60 thunderstorm days per year – an average of 1 thunderstorm day every 6-18 days, depending on location.	Occur primarily during the spring and summer months.
Tornadoes	18 tornadoes per year – 1 every 20 days, on average.	Occur primarily during the spring and summer months.
Riverine Flooding	1 major flood approximately every 2 years.	May cause significant evacuations and property damage.

Most Deaths

Hazard	Number of Deaths	Comments
Structural Fires	213 in 1998 – an average of 1 death every 2 days; fire death rate = 21.1 persons per million population.	Fire death rate ranks 16 th nationally, 2 nd in Midwest.
Extreme Temperatures	570 in 1936 heat wave – others have occurred sporadically; an average of nearly 9 deaths per year from the 1936 figures alone.	Statistics difficult to compile because temperature-related deaths are not always reported as such.
Transportation Accidents (air transport crashes)	250 since 1958 – an average of nearly 6 deaths per year.	Death tolls resulted from 5 crashes.
Tornadoes	239 since 1950 – an average of nearly 5 deaths per year.	Death tolls significantly influenced by June 8, 1953 and April 11, 1965 tornadoes, which resulted in 168 deaths.
Extreme Temperatures	570 in the July 1936 heat wave alone – an average of nearly 9 deaths per year.	Nationally, the July 1936 heat wave caused 5,000 deaths.
Wildfires	500+ since 1871 – an average of nearly 4 per year.	Most deaths occurred in the 1871 and 1881 wildfires.
Severe Winds	115 since 1970 – an average of 3.6 deaths per year.	N/A
Lightning	99 since 1959 – an average of 2.3 deaths per year.	Lightning deaths rank 12 th nationally.
Civil Disturbances	77 in non-prison disturbances since 1943 – an average of just over 1 death per year.	Deaths occurred in the 1943 and 1967 riots in Detroit.
Industrial Accidents	44 since 1927 – an average of just over 1 death every two years.	Deaths occurred in major accidents in 1927, 1999 (3 events), and 2000.
Sabotage/Terrorism	41 since 1927 – an average of 1 death every two years.	Deaths occurred in 1927 Bath school explosion.

MICHIGAN HAZARD ANALYSIS

2001 Hazards Rankings*

Most Injuries

Hazard	Number of Injuries	Comments
Structural Fires	669 in 1998 – an average of 1.8 injuries per day.	N/A
Tornadoes	3,332 since 1950 – an average of 64 injuries per year.	N/A
Transportation Accidents (Passenger)	116 in major land transport accidents since 1999 – an average of nearly 39 injuries per year; 22 from major air transport crashes since 1958 – an average of 1 injury every 2 years.	Includes only major accidents; if all accidents were included, the totals would be higher.
Civil Disturbances	1,700+ in non-prison disturbances since 1943 – an average of just over 29 injuries per year.	Conservative estimate; only includes injuries attributable to major disturbances such as the 1943 and 1967 Detroit riots.
Industrial Accidents	62 in major accidents since 1999 – an average of just over 20.6 injuries per year.	Injuries occurred in 4 major accidents.
Severe Winds	660+ since 1970 – an average of just over 20.5 injuries per year.	N/A
Lightning	693 since 1959 – an average of 16.5 injuries per year.	Lightning injuries rank 2 nd nationally.
Public Health Emergencies	327 from 3 major incidents since 1973 – an average of nearly 12 injuries per year.	Only readily evident injuries are included.
Petroleum/Gas Pipeline Accidents	34 in major accidents since 1975 – an average of 1.3 injuries per year.	Conservative estimate; only includes injuries attributable to major accidents.
Sabotage/Terrorism	58 since 1927 – an average of 1 injury approximately every 1.3 years.	Injuries occurred in 1927 Bath school explosion.

Most Property Damage

Hazard	Property Damage	Comments
Structural Fires	\$400 million in 1998 – an average of \$1.1 million per day.	Approximately 75% of all fire losses are structural fire related.
Infrastructure Failures	\$250 million in federally declared infrastructure failure disasters since 1994 – an average of \$35.7 million per year.	
Riverine/Great Lakes Flooding	\$60-100 million per year for all flooding; \$475 million in major riverine floods since 1975 – an average of nearly \$18.3 million per year.	Annual damage figures for all flooding based on Michigan Department of Environmental Quality estimates.
Severe Winds	\$260+ million in public and private damage from major wind events since 1980 – an average of nearly \$12 million per year. NCDC records list \$285+ million in damage since 1993 alone – an average of \$31.7 million per year.	Conservative estimates; the actual totals are likely to be higher.
Tornadoes	\$700 million in public and private damage from tornadoes since 1950 – an average of \$13.5 million per year.	Conservative estimates; the actual totals are likely to be higher.
Ice/Sleet Storms	\$100+ million in public and private damage from major storm events since 1976 – an average of \$4 million per year. NCDC records list \$35.8 million in damage since 1993 alone – an average of \$4 million per year as well.	Conservative estimates; the actual totals are likely to be higher.
Lightning	National estimates indicate several billion dollars per year. NCDC records list \$17.7 million in damage since 1993 alone – an average of \$2 million per year.	Statistics compiled by many different sources using widely varying collection methods and criteria; establishing a collective damage figure for the U.S. is difficult.
Sabotage/Terrorism	National estimates indicate several billion dollars just from major events.	N/A

MICHIGAN HAZARD ANALYSIS

2001 Hazards Rankings*

Largest Impact Area

Hazard	Typical Impact Area	Comments
Nuclear Attack	Statewide	N/A
Drought	Regional-Statewide	N/A
Extreme Temperatures	Regional-Statewide	N/A
Snowstorms	Local-Statewide	N/A
Public Health Emergencies	Local-Statewide	N/A
Energy Emergencies	Local-Statewide	N/A

Risk Rating: Human Life

Hazard	Risk Rating	Comments
Nuclear Attack	Very High	All-out attack could be catastrophic in terms of loss of life (from direct weapons effects and the resulting radiation).
Structural Fires	High	Michigan's fire death rate = 21.1 persons per million population, ranking it in the top 25% of all states in the U.S., and 2 nd in the Midwest.
Tornadoes	High	Extreme risk for unprotected individuals in storms path; lack (often) of adequate warning time adds to risk to human life.
Lightning	High	Michigan's lightning death total of 97 and injury total of 691 since 1959 rank it in the top one-third and top five, respectively, in the U.S.
Extreme Temperatures	Moderate-High	Prolonged heat waves are particularly dangerous, especially on the most vulnerable segments of the population – the elderly, children, impoverished individuals, and people in poor health.
Dam Failures	Moderate-High	Risk depends on nature, composition, and size of hydraulic "shadow/footprint" and amount of water impounded by dam.
Nuclear Power Plant Accidents	Moderate-High	Long-term effects from radiation exposure in the event of a catastrophic accident.

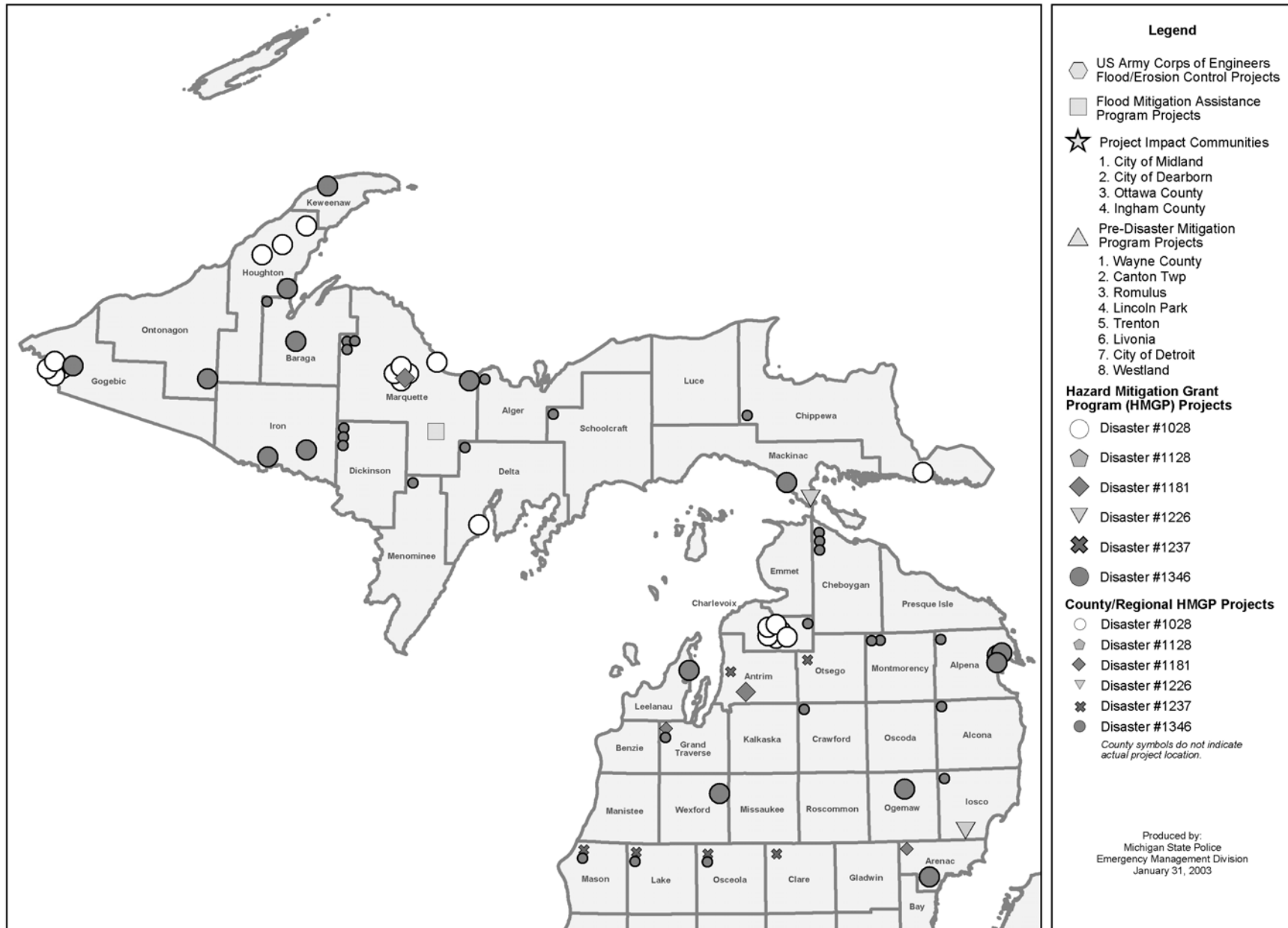
MICHIGAN HAZARD ANALYSIS 2001 Hazards Rankings*

Risk Rating: Property Damage

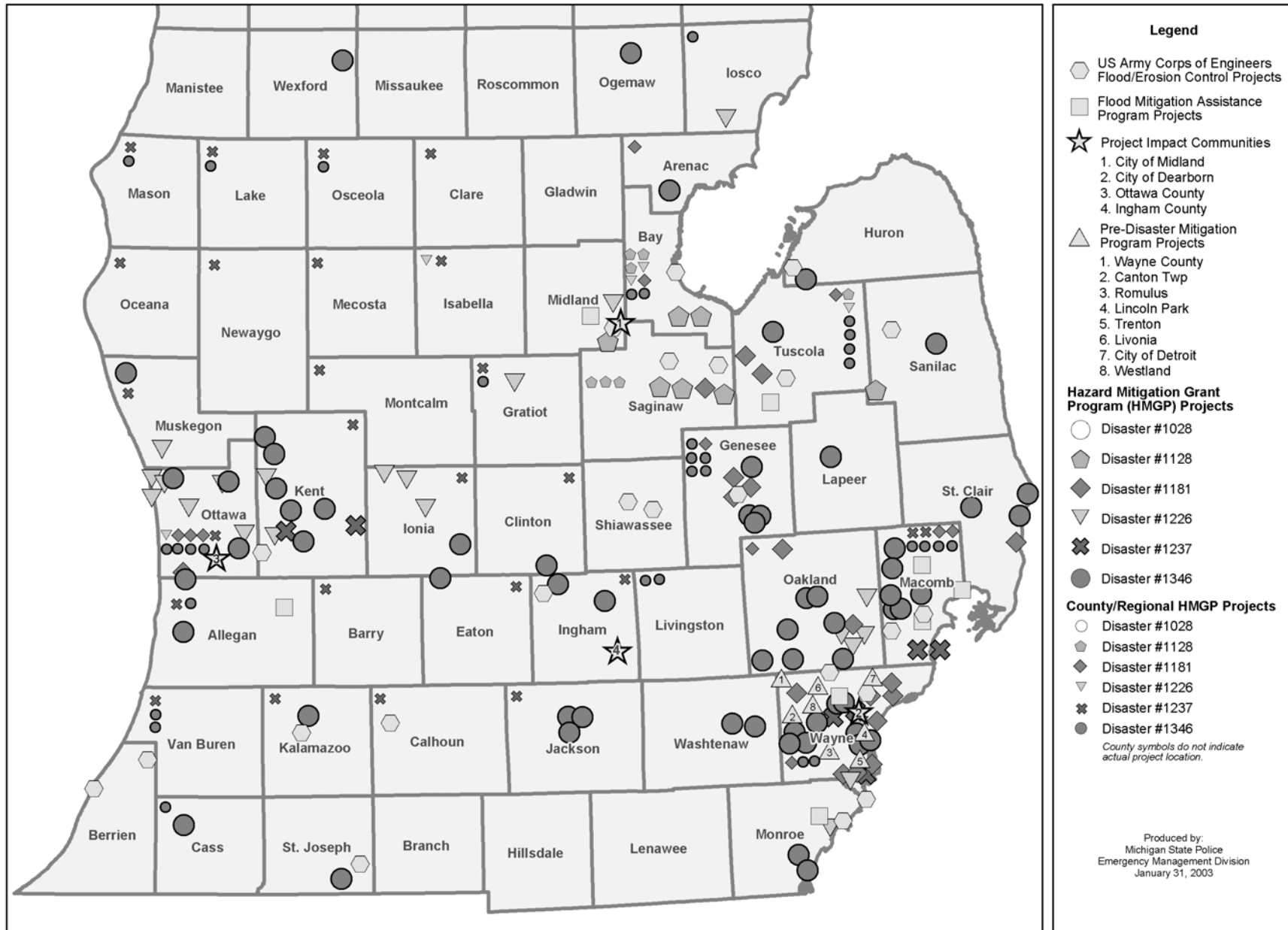
Hazard	Risk Rating	Comments
Nuclear Attack	Very High	All-out attack could be catastrophic in terms of property damage (within the direct weapons effects areas). Outside those areas, property damage would be significantly less severe.
Structural Fires	High	Nearly \$400 million in structural fire losses in Michigan in 1998. Since 1975, total fire losses have increased over 300%.
Riverine/Great Lakes Flooding	High	\$60-100 million per year in flood-related losses in Michigan. The Michigan Department of Environmental Quality estimates that 6% of Michigan's land is prone to flooding (containing app. 200,000 buildings). In addition, the MDEQ estimates that app. 10% of Michigan's Great Lakes shoreline (30 counties encompassing more than 45,000 acres) is floodprone.
Severe Winds	Moderate-High	\$260+ million in public and private damage from major wind events since 1980 – an average of nearly \$12 million per year. NCDC records list \$285+ million in property and crop damage from severe winds since 1993 alone – an average of \$31.7 million per year. (Note: these figures are conservative; the actual totals are likely to be higher.)
Tornadoes	High	Damage tends to be localized, but severe. \$700 million in damage from tornadoes since 1950 – an average of \$13.5 million per year. (Note: these figures are conservative; the actual totals are likely to be higher.)
Ice/Sleet Storms	Moderate-High	\$100+ million in public and private damage from major storm events since 1976 – an average of \$4 million per year. NCDC records list \$35.8 million in damage since 1993 alone – an average of \$4 million as well. (Note: these figures are conservative; the actual totals are likely to be higher.)
Hail	Moderate-High	Damage generally localized, but costly in terms of repairs to roofs, windows, vehicles, etc. NCDC records list \$27.9 million in property and crop damage from hail since 1993 – an average of \$3.1 million per year. (Note: these figures are conservative; the actual totals are likely to be higher.)
Lightning	High	National estimates indicate several billion dollars per year in property losses due to lightning strikes. NCDC records list \$17.7 million in damage since 1993 alone – an average of \$2 million per year.
Wildfires	Moderate-High	Northern Michigan wildland areas rapidly populating. Property values in these wildfire areas are rapidly increasing. The exposure and vulnerability to wildfires in Northern Michigan continues to increase. Depending on location, wildfires can be very costly in terms of timber losses.
Dam Failures	Moderate-High	Risk depends on nature, composition, and size of hydraulic "shadow/footprint" and amount of water impounded by dam.

*Based solely on the data available in the 2001 Michigan Hazard Analysis. Data periods vary by hazard. For some hazards, certain data may not be readily available. If such data were available, these rankings would likely change somewhat. Hazards are not necessarily ranked in exact order of severity. Risk ratings are subjective and take into account the universe of factors examined in this chart.

Michigan Hazard Mitigation Projects, as of December 31, 2002 Northern Lower Peninsula & Upper Peninsula



Michigan Hazard Mitigation Projects, as of December 31, 2002 Southern Lower Peninsula





Disaster #1028

1028.001 Village of South Range - 4th St watermain/service replacements
 1028.002 Village of Boyne Falls - Railroad St watermain replacement
 1028.003 City of Escanaba - Sewer freeze protection
 1028.004 Village of De Tour - Funded through FEMA Public Assistance Grant Program
 1028.005 Village of Lake Linden - Osceola/Pine St watermain replacements
 1028.006 Portage Lake Water/Sewer - Funded through FEMA Public Assistance Grant Program
 1028.007 City of Ironwood - Cherry Pl watermain replacement
 1028.008 City of Ironwood - Rowe St watermain/service replacements
 1028.009 City of Ironwood - Bonnie St sewer insulation
 1028.010 City of Ironwood - Bundy St sewer insulation
 1028.011 City of Ishpeming - Willow St water line improvements
 1028.012 City of Ishpeming - Bessemer/Iron St water line improvement
 1028.013 City of Ishpeming - Davis St water line improvement
 1028.014 City of Ishpeming - Elm St water line improvement
 1028.015 City of Marquette - Pine/Russell St & Kays Ave water/sewer replacement
 1028.016 City of Boyne City - Clarke St watermain replacement
 1028.017 City of Boyne City - Elm St sewermain replacement
 1028.018 City of Boyne City - Clarke St sewermain replacement
 1028.019 City of Boyne City - Bailey St watermain replacement
 1028.020 City of Boyne City - West/Trent St watermain replacement



Disaster #1128

1128.002 Flint River Dike & Erosion Control Board - Flint River dike reconstruction
 1128.003 City of Marlette - Construct retention pond near William Little Sub
 1128.004 Michigan Dept. of Agriculture - Data digitization for seven-county area
 1128.005 Bay County Drain Commission - Garfield Sub area relief mit. project
 1128.006 Bridgeport Charter Twp - Repair bank & install rip-rap along Cass River
 1128.007 Midland Co Drain Commission - Lingle Drain outlet reconstruction
 1128.008 Saginaw Co Road Commission - River Road bank stabilization
 1128.009 Bay Area Family "Y" - Elevate 2 boiler control homes in basement
 1128.010 Saginaw Co Road Commission - Dixie Hwy road stabilization
 1128.011 Saginaw Co Road Commission - Havana Road bank stabilization
 1128.012 City of Frankenmuth - Sheetpile wall & bank rehab of Cass River
 1128.013 City of Bay City - Floodproofing city wastewater treatment plant
 1128.014 Bay Co Road Commission - Shoulder stabilization for Youngs Ditch Rd
 1128.015 Bay Co Road Commission - Shoulder Stabilization for Kinney Rd
 1128.016 Tuscola Co Drain Commission - Coleman Drainage District



Disaster #1181

1181.001 MI Dept of Agriculture - Soil survey data to the several counties in digital format
 1181.003 City of Hantrawick - Install early warning sirens & public info on use
 1181.004 Genesee Co - Install additional radio activated warning notifiers
 1181.005 City of River Rouge - Install early warning system
 1181.006 Wayne Co Emergency Mgmt Div - Weather radios for schools, hospitals & nursing homes
 1181.007 Groveland Twp - Install 3 severe weather warning siren systems
 1181.008 Macomb Co - Install County emergency alert system
 1181.009 City of Detroit Neighborhood City Halls - Implement long-term community outreach
 1181.010 Wayne Co Emergency Mgmt Div - Developing material & a video on all hazards awareness
 1181.012 City of Plymouth - Installation of additional early warning sirens
 1181.013 Arenac Co Emergency Mgmt - Install early warning system
 1181.014 Macomb Co - Develop a family preparedness public information program
 1181.015 MI Dept of Natural Resources - Urban forestry educational program
 1181.016 City of Flint - Acquisition & relocation of 5 houses in repetitive flood area
 1181.017 City of Flint - Acquisition & relocation of 16 houses in repetitive flood area
 1181.018 City of Flint - Acquisition & relocation of 8 houses in repetitive flood area
 1181.020 Brownstown Charter Twp - Raised finished floor in 12 floodprone homes
 1181.024 Oakland Co Radio Communications - Install wind braces to dishes on radio towers
 1181.025 Bridgeport Charter Twp - Removal of log jam & rebuilding of banks with rip-rap
 1181.027 Birch Run Twp - Flint River Dike Land Acquisition
 1181.028 Ottawa Co Drain Commissioner - Borejack additional culvert under M 21 (Rose Drain)
 1181.029 Ottawa Co Drain Commissioner - Construct relief drain on existing stormwater basins
 1181.030 MI Housing Development Authority - Windproofing 75-100 homes in the Detroit area
 1181.031 Oakland Co - Tornado shelter
 1181.032 Detroit Fire Dept - Install warning siren on Cadillac Building
 1181.033 City of Holland - Purchase & relocate 2 homes located in floodway
 1181.034 City of Midland - Acquire 4D, Inc & relocate out of floodplain
 1181.036 MI Dept of Environmental Quality - Digital floodplain mapping of the Grand River Channel
 1181.037 MI Dept of Environmental Quality - Develop rating tables at forecast/data point
 1181.038 MI Dept of Environmental Quality - Digital floodplain mapping in Macatawa River watershed
 1181.040 MI Dept of Environmental Quality - Development of 100-yr flood elevations on selected lakes
 1181.042 City of Birmingham - Ejector pumps, backflow preventers, standpipes for community
 1181.043 Ottawa Co - NOAA weather radio transmitter for portions of Ottawa, Muskegon & Allegan Co



Disaster #1237

1237.001 Otsego Co RACES Radio Group - Weather alert monitors
 1237.002 City of Inkster - Install warning sirens
 1237.003 City of St Clair Shores - Install 4 warning sirens
 1237.004 VESSA - Early warning capability for 23 counties
 1237.005 Antrim Co - Weather alert monitors
 1237.007 Grand Traverse Co - Laser mapping of floodplain
 1237.009 Macomb Co - Lightning protection-grounding, phasing
 1237.010 Macomb Co - Lightning protection-grounding, phasing
 1237.012 City of St. Clair Shores - Elevate floors on floodprone structures



Disaster #1226

1226.001 Georgetown Charter Twp - Move existing warning sirens & add sirens to warning system
 1226.002 City of Howell - Purchase & installation of 2 outdoor sirens & upgrade of existing siren
 1226.003 Alpine Twp - Installation of 3 electronically operated sirens
 1226.004 Orleans Twp - Installation of severe weather warning sirens near 2 populated areas
 1226.005 City of Coopersville - Install early warning siren & generators
 1226.006 City of Alma - Purchase of warning siren
 1226.007 City of Ionia - Four new tornado sirens
 1226.008 City of Allen Park - Purchase 4 warning sirens
 1226.009 City of Birmingham - Purchase 2 warning sirens
 1226.010 City of Rochester Hills - Purchase 2 warning sirens
 1226.011 City of Belding - Install 3 warning sirens & equipment
 1226.012 City of Ann Arbor Fire Dept - Life safety measures
 1226.013 Muskegon Co Airport - Modify roof ballast system of passenger terminal bldg
 1226.014 City of Vassar - Purchase 4 properties located in floodway
 1226.015 Flint River Dike & Erosion Ctrl Board - Debris removal & contr of dikes
 1226.016 Tuscola Co Drain Commission - Moore Drain mitigation efforts
 1226.017 Mackinac Co - Housing of existing generator at new housing facility
 1226.018 Monroe Co Drain Commission - Modify existing intake structure
 1226.019 City of Grand Haven - Mitigation of power source problems
 1226.020 City of Grand Haven - Revire existing generators
 1226.021 Village of Spring Lake - Replace Village Hall roof with reinforced roof
 1226.022 City of Birmingham - Install remwall along river at several businesses & offices
 1226.024 Bay Co Drain Commission - Floodproofing of 6 houses
 1226.025 Bay Co Drain Commission - Floodproofing of 30 houses
 1226.026 City of Wyoming - Replace bridge over creek in an industrial park
 1226.027 Flint River Dike & Erosion Ctrl Board - Create retention basin
 1226.028 Isoco Co Drain Commission - Rock rip-rap along Crosby Rd
 1226.030 Huron Co Drain Commission - Drain reconstruction & flow diversion
 1226.031 City of Birmingham - Severe weather monitors
 1226.032 Isabella Co - NOAA transmitter - communication system for weather alerts
 1226.033 MI Dept of Environmental Quality - Storage on disc of NFP flood modeling



Disaster #1346

1346.1 MSP/EMD - Management Costs
 1346.10 City of Port Huron - Standby power for water treatment plant
 1346.11 Michigan State University - Spartan Child Development Center
 1346.12 City of Wyandotte - Purchase & installation of 2300 restricted catch basin covers
 1346.13 Bloomfield Twp - Franklin Beach streambank stabilization project
 1346.14 Genesee Twp - Crampton Drain Project
 1346.15 City of Southgate - Cedarhurst/Oaklawn Sanitary Relief Sewer
 1346.16 Blackman Twp - Emergency Shelter
 1346.17 Blackman Twp - Portable generator for sewer
 1346.18 Tuscola Co Drain Comm - Moore Drain flood mit.
 1346.19 Van Buren Twp - Backup electrical generators for 9 sanitary sewer lift stations
 1346.20 Wayne Co - Pine St Controller
 1346.21 Van Buren Twp - Flood mitigation, 194 service drive
 1346.22 Van Buren Twp - Vesterlin, DeWit and Jeune Ave flooding
 1346.23 City of Kentwood - Ridgemoor Center flooding mitigation (stormwater control)
 1346.24 Tuscola Co Drain Comm - Sellers Drain, Thome Subdivision
 1346.25 Wayne Co Dept of Environment - Downriver area - basement flooding (13 communities share cost)
 1346.26 Tuscola Co Drain Comm - Bach and Branches Drain
 1346.27 City of Crystal Falls - N 6th St stormwater conveyance
 1346.28 City of Southfield - Kummell Drain improvements
 1346.29 City of Grand Blanc - Bella Vista Subdivision drainage system
 1346.30 City of Grand Blanc - Indian Hills Subdivision drainage system
 1346.31 City of Novi - Culvert upgrade - West Park Dr/South Lake Ct
 1346.33 Village of Clinton - Retention basin
 1346.34 Village of Kent City - Culvert/bridge
 1346.35 Interior Twp - Trout Creek dam
 1346.36 Montmorency Co Drain Comm - Culvert to a bridge
 1346.37 Montmorency Co Drain Comm - Culvert
 1346.38 Marquette Co Conservation Dist - Dam removal
 1346.39 Cheboygan Co Road Comm - Slide Rd, bridge/culvert
 1346.4 City of Wayne - Backup power supply for the City of Wayne Stellwagen
 1346.40 Cheboygan Co Road Comm - Old Mackinaw Rd - bridge/culvert
 1346.41 Cass Co Drain Comm - 2 detention basins
 1346.42 Lyon Twp - Stormwater improvement
 1346.43 City of Alpena - Culvert upgrade
 1346.44 Macomb Co Public Works Ofc - Upgrade of 3 pumping stations
 1346.45 MDOT - US41 Red Rocks, shoreline protection
 1346.46 MDOT - M 26 Jacobs Falls
 1346.47 MDOT - M 28 sand dunes
 1346.48 MDOT - Alberta Ponds culvert
 1346.49 MDOT - US 2 at Black River, culvert
 1346.50 MDOT - US 2 sand dunes
 1346.501 Michigan Tech University - Development of composite shear wall to resist high wind loads
 1346.502 Grand Traverse Co - Weather radio distribution project
 1346.503 Crawford Co - NOAA weather alert radio distribution
 1346.504 City of Luna Pier - Permanent elevation benchmark monuments
 1346.505 Ottawa Co - NOAA Weather radio distribution project
 1346.506 Macomb Co - Alert radio purchase
 1346.507 Macomb Co - Streambank & road crossing inventory (Middle Branch Clinton River)
 1346.508 Waterford Twp - Engineering & feasibility study, 2001
 1346.509 Waterford Twp - Education & public awareness program, 2001
 1346.51 Macomb Co Emergency Mgmt - Elevation of 4 homes 1 foot above the 100-year elevation
 1346.510 Osceola/Muskegon Co - Central Western Michigan NOAA weather radio
 1346.511 City of Dearborn Heights - Ecorse Creek warning sensor
 1346.514 Statewide Services, Hearing Impaired - Deaf/Elderly Deaf/Disabled warning
 1346.516 MSP/EMD Preparedness Section - EMD GIS Project
 1346.517 MDNR - Developing Firewise communities in Southern Michigan
 1346.518 MSP/EMD Mitigation Unit - Statewide mitigation marketing
 1346.519 MSP/EMD Gov't & Pub Affairs - Emergency Mgmt educational materials
 1346.52 City of Parliament - Improvement of stormwater collection system
 1346.520 MSP/EMD Preparedness Section - EMD EAS project (\$77500 share from Local Broadcasters, in kind)
 1346.521 MDEQ - Floodplain Mgmt in Michigan Quick Guide
 1346.522 City of Dearborn Heights - 2 outdoor warning sirens, electrical hookup & remote activation
 1346.523 CUPPAD - 6-county study in central UP to ID hazards & mitigation needs
 1346.524 City of Holland - Siren
 1346.525 City of Utica - One siren
 1346.526 City of Dowagiac - 3 sirens. Fed share is 58%
 1346.527 Washington Twp - warning sirens (3). Fed share proposed project 61%
 1346.528 Bruce Twp & Village of Romeo - 4 sirens
 1346.529 Alpine Twp - Siren
 1346.53 Flint River Dike Erosion Ctrl Board - Flint River flood control project - complete
 1346.530 City of Hudsonville - Siren
 1346.531 Spring Lake Twp - Two sirens. Fed share 72% of total project
 1346.532 Shelby Twp - Warning sirens
 1346.533 Washtenaw Co Community College - Siren. Fed share of proposed project is 70%
 1346.534 Macomb Twp - 2 sirens
 1346.535 City of Alpena - 2 sirens. Fed share 72% of total project
 1346.536 GTB Ottawa/Chippewa Indians - 1 siren. Fed cost share 62% of total project
 1346.537 MDNR - Mine closures
 1346.538 Ada Twp - Sirens
 1346.539 City of Fennville - Siren
 1346.54 City of Gastra - Relocation of main sewer line next to Baltic mine pit
 1346.540 Blackman Twp - 4 sirens
 1346.541 Mich Assoc of Broadcasters - Emergency Alert System relay
 1346.542 South Branch Mill Creek Drainage Dist - South Branch Mill Creek drain
 1346.543 Northwest County Drainage Dist - 1/3 replacement for 1346.515
 1346.544 Southbranch Cass Riv Intercountry Drainage Dist - 1/3 replacement for 1346.515
 1346.545 Rich Intercountry Drainage Dist - 1/3 replacement for 1346.515
 1346.55 Van Buren Co Drain Comm - Peterson Drain
 1346.56 Daycroft Montessori School (Ann Arbor) - PNP school, flood wall
 1346.57 Sebewaing River Drainage Board - Sebewaing River emergency floodway
 1346.58 Ottawa Co Road Comm - Raise M 21 roadway
 1346.59 Commerce Twp - Flood mitigation system
 1346.6 City of Alpena - Water recycling plant emergency backup generator
 1346.60 Ottawa Co Road Comm - Culvert replacement with riprap
 1346.61 Livingston Co Drain Comm - Water conveyance and detention
 1346.62 Alpena Co Road Comm - Culvert/bridge upgrade
 1346.63 City of Standish - Box culvert
 1346.64 City of Sturgis - Storm water diversion project
 1346.65 Alcona Co Road Comm - Replace culverts with bridge
 1346.66 City of Montague - Acquisition of land & demolition
 1346.67 Charlevoix Co Road Comm - Replace 2 culverts with box culvert
 1346.68 City of Grand Rapids - Plaster Creek flood mitigation
 1346.69 Van Buren Co Drain Comm - Detention basin - South Haven
 1346.7 Bay Co Drain Comm - Flood mitigation of Myra Lee & Fraiser Midland Rd
 1346.70 Rose City - culvert
 1346.71 Allegan Co Drain Comm - Flood walls & storm water pump
 1346.72 Dickinson Co Emergency Services - Cornish pump museum
 1346.73 City of Williamston - Red Cedar River erosion control
 1346.74 Village of Sunfield - Storm sewer upgrade
 1346.75 Livingston Co Drain Comm - Acquisition & relocation of homes
 1346.76 Isoco Co Road Comm - Culvert & ditch
 1346.77 Gratiot Co Road Comm - Lakeside Drive culvert upgrade
 1346.78 Tuscola Co Drain Comm - Streeter Drain
 1346.79 City of Manton - WWTP floodproofing
 1346.8 City of Allen Park - Relocation of emergency generators
 1346.80 City of Portland - Power lines
 1346.802 MSP/EMD - Statewide planning initiative
 1346.81 Chippewa Co Road Comm - Culvert & bank stabilization
 1346.82 Genesee Co Drain Comm - Pumping Station No 1, Flint Twp
 1346.83 Genesee Co Drain Comm - Manholes, Flint Twp
 1346.84 Genesee Co Drain Comm - Curwood Pump Station
 1346.85 City of Utica - Elevation of 10 homes, Davis St
 1346.86 LaSalle Twp - Elevate 1 house
 1346.87 City of Coopersville - Culvert replacement & acquisition of 1 house
 1346.88 City of Grand Blanc - LaVae Gardens
 1346.89 Bay Co Drain Comm - Garfield & Walters subdivision flood mit
 1346.9 Cheboygan Co - Mullett Lake bank stabilization
 1346.90 MSP/EMD - Phase I rep loss project (consultant)
 1346.91 MSP/EMD - Phase II rep loss project (acquisitions & elevations)
 1346.92 Village of Sparta - Reed property acquisition project
 1346.93 Ottawa Co Parks & Recreation - Flood mitigation acquisition & removal along Grand River
 1346.94 City of Marysville - River Road stabilization

PRESIDENTIAL DECLARATIONS* 1974-2002

<u>Date of Incident</u>	<u>Type of Incident</u>	<u>Affected Area</u>	<u>Type of Declaration</u>
4/10/02-5/9/02	Flooding	6 counties: Baraga, Gogebic, Houghton, Iron, Marquette, & Ontonagon Co.; plus the Keweenaw Bay Indian Community	Major Disaster
12/11-31/00	Blizzard, snowstorm	39 counties: Allegan, Barry, Bay, Berrien, Branch, Calhoun, Cass, Clare, Clinton, Eaton, Genesee, Gladwin, Gratiot, Hillsdale, Huron, Ingham, Ionia, Isabella, Jackson, Kalamazoo, Kent, Lapeer, Livingston, Macomb, Mecosta, Midland, Montcalm, Muskegon, Oakland, Osceola, Ottawa, Saginaw, St. Clair, St. Joseph, Sanilac, Shiawassee, Tuscola, Van Buren, & Washtenaw Co.	Emergency
9/10-11/00	Urban Flooding	2 counties: Wayne & Oakland Co.	Major Disaster
5/2-10/99	Forest Fire	2 counties: Marquette & Mackinac Co. (Grant Recipient: Michigan Dept. of Natural Resources)	Fire Suppression
1/2-15/99	Blizzard, snowstorm	31 counties: Alcona, Allegan, Arenac, Barry, Berrien, Cass, Crawford, Ionia, Iosco, Jackson, Kalamazoo, Kent, Lenawee, Macomb, Marquette, Mecosta, Monroe, Montmorency, Muskegon, Newaygo, Oakland, Oceana, Ogemaw, Osceola, Oscoda, Otsego, Ottawa, St. Joseph, Van Buren, Washtenaw, & Wayne Co.	Emergency
7/21/98	Thunderstorms & high winds	2 counties: Macomb & Wayne Co.	Major Disaster
5/31/98	Thunderstorms & high winds	13 counties: Bay, Clinton, Gratiot, Ionia, Kent, Mason, Montcalm, Muskegon, Newaygo, Oceana, Ottawa, Saginaw & Shiawassee Co.	Major Disaster
7/2/97	Tornadoes & flooding	5 counties: Genesee, Macomb, Oakland, Saginaw & Wayne Co.	Major Disaster
6/21-7/1/96	Rainstorms, flooding & tornado	7 counties: Bay, Lapeer, Midland, Saginaw, Sanilac, St. Clair, & Tuscola Co.	Major Disaster
12/93-5/94	Underground freeze	10 counties: Charlevoix, Cheboygan, Chippewa, Delta, Gogebic, Houghton, Mackinac, Marquette, Ontonagon, & Schoolcraft Co.	Major Disaster
9/10-19/86	Flooding	30 counties: Allegan, Arenac, Bay, Clare, Clinton, Genesee, Gladwin, Gratiot, Huron, Ionia, Isabella, Kent, Lake, Lapeer, Macomb, Manistee, Mason, Mecosta, Midland, Montcalm, Muskegon, Newaygo, Oceana, Osceola, Ottawa, Saginaw, Sanilac, Shiawassee, Tuscola, & Van Buren Co.	Major Disaster
9/5-6/85	Flooding	6 counties: Alcona, Genesee, Iosco, Lapeer, Saginaw & Shiawassee Co.	Major Disaster
3/12-20/82	Flooding	2 counties: Berrien & Monroe Co.	Major Disaster
7/15-20/80	High winds	10 counties: Allegan, Berrien, Calhoun, Cass, Jackson, Ottawa, St. Joseph, Van Buren, Washtenaw, & Wayne Co.	Major Disaster
5/13/80	Tornado	2 counties: Kalamazoo & Van Buren Co.	Major Disaster
1/26-27/78	Blizzard, snowstorm	Statewide	Emergency
1/26-31/77	Blizzard, snowstorm	15 counties: Allegan, Barry, Berrien, Cass, Chippewa, Hillsdale, Kalamazoo, Kent, Monroe, Muskegon, Newaygo, Oceana, Ottawa, St. Joseph, & Van Buren Co.	Emergency
3/20/76 3/2-7/76	Ice storms, tornadoes	29 counties: Allegan, Bay, Clare, Clinton, Genesee, Gladwin, Gladwin, Gratiot, Ionia, Isabella, Jackson, Kent, Lapeer, Macomb, Mecosta, Midland, Montcalm, Muskegon, Newaygo, Oakland, Oceana, Osceola, Ottawa, Roscommon, Saginaw, St. Clair, Sanilac, Shiawassee, Tuscola, & Wayne Co.	Major Disaster
8/20/75- 9/6/75	Rainstorms, high winds, flooding	16 counties: Allegan, Clare, Genesee, Gratiot, Ingham, Isabella, Mecosta, Midland, Montcalm, Muskegon, Newaygo, Oceana, Osceola, Ottawa, Saginaw, & Shiawassee Co.	Major Disaster
4/18-30/75	Flooding, rain, tornadoes	21 counties: Allegan, Barry, Berrien, Calhoun, Clinton, Crawford, Eaton, Genesee, Ingham, Ionia, Kalamazoo, Kent, Lapeer, Livingston, Macomb, Oakland, Ottawa, Saginaw, St. Clair, Shiawassee, & Van Buren Co.	Major Disaster
4/3/74	Tornado	1 county: Hillsdale Co.	Major Disaster

TOTALS FOR 1974-2002: 21 EVENTS (16 Major Disaster Declarations; 4 Emergency Declarations; 1 Fire Suppression Declaration)

* under PL 93-288, as amended. Does not include separate Secretary of Agriculture or Small Business Administration (SBA) disaster declarations, which are issued under other authorities.

GOVERNOR'S DECLARATIONS* 1977-2002

Date of Declaration	Type of Incident	Affected Area	Type of Declaration
<u>2000-02</u>			
5/10/02 4/30/02 4/16/02	Flooding	Baraga, Houghton, Iron, Marquette, & Ontonagon Co.; City of Ironwood (Gogebic Co.)	Disaster
12/29/01	Heavy snow	Emmet Co.	Emergency
10/26/01	Severe winds	Kalamazoo Co.	Disaster
3/9/01	Flooding	Genesee Co.	Disaster
9/20/00	Urban Flooding	Wayne Co.	Disaster
6/7/00	Gasoline Pipeline Rupture	Blackman Twp. (Jackson Co.)	Emergency
2000-02 TOTAL:		6 EVENTS	
<u>1990-99</u>			
8/5/99	Subsidence (Mine Shaft Cave In)	Dickinson Co.	Emergency
7/5/99	Tornado	Oscoda Co.	Disaster
1/15/99	Blizzard; snowstorm	City of Detroit (Wayne Co.)	Emergency
9/27/98	High winds	Otsego Co.	Emergency
9/1/98	Thunderstorms & high winds	City of Niles (Berrien Co.)	Emergency
7/24/98 7/23/98	Thunderstorms & high winds	Wayne Co.; City of Dearborn (Wayne Co.); City of Warren (Macomb Co.)	Disaster
6/5/98 6/4/98 6/3/98	Thunderstorms & high winds	Bay, Clinton, Gratiot, Ionia, Kent, Mason, Mecosta, Montcalm, Muskegon, Newaygo, Oceana, Ottawa, Saginaw, & Shiawassee Co.; Village of Armada (Macomb Co.)	Disaster
4/1/98	Flooding	Alpena Co.	Emergency
7/6/97 7/3/97	Tornadoes & flooding	Genesee, Macomb, Oakland & Wayne Co.; City of Detroit (Wayne Co.); Village of Chesaning (Saginaw Co.)	Disaster
6/27/97	Rainstorms & flooding	Allegan & Ottawa Co.	Disaster
6/26/96 6/21/96	Rainstorms, flooding & tornado	Bay, Lapeer, Saginaw, Sanilac, St. Clair, & Tuscola Co.; City of Midland (Midland Co.)	Disaster
5/22/96	Flooding	Berrien Co.	Disaster
12/13/95	Snowstorm	City of Sault St. Marie (Chippewa Co.)	Emergency
7/8/94	Flooding	Tuscola & Sanilac Co.	Disaster
3/10/94 3/4/94 2/25/94 2/23/94	Underground freeze	Charlevoix, Cheboygan, Chippewa, Delta, Gogebic, Houghton, Mackinac, Marquette, Ontonagon, & Schoolcraft Co.	Emergency
4/20/93	Flash flood	Shiawassee Co.	Disaster
7/16/92	Heavy rain	Gogebic Co.	Disaster
7/14/92	Tornado	Cass Co.	Disaster
10/6/90	Tornado	Genesee Co.	Disaster
9/16/90	Ship explosion & fire	Bay Co.	Emergency
5/9/90	Forest fire	Crawford Co.	Emergency

1990-99 TOTAL: 21 EVENTS

Type of

Total Number of Declarations by County

2 7 18

Individual Number of Declarations by County

Governor's Declarations 1977-2001

Governor's Declarations for Local Municipality 1977-2001

Presidential Declarations 1974-2001

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